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ABSTRACT

A bilingual early education program for migrant children ages three through third grade, the interstate program operates two permanent sites in Washington and one site in Texas. The Texas site operates a mobile component in which the teachers and administrative and training staff relocate to northern work sites providing continuing services to children who move from Texas in the migrant stream. The program's five components are instruction, staff development, parent and community involvement, materials development, and management. Overall the program has met or partially met its objectives in each component. This report presents the program's progress in each component during the 1976-77 program year. The objective, need, teaching process or involvement approach, and results along with a summary of findings are given for each component. The appendices include a technical report on the Bilingual Mini Head Start Test of Cultural Concepts, information on the testing procedures and data collection, and statistical data on the analysis of test scores in the instructional component. (NQ)

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EVALUATION OF PROGRESS
TRAINING MIGRANT PARAPROFESSIONALS

FINAL EVALUATION
1976-77 Program Year
No. 11 in Series

Prepared by Beverly McConnell, Evaluator

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A NATIONALLY VALIDATED BILINGUAL PROGRAM
A DEMONSTRATOR/DEVELOPER PROGRAM IN THE NATIONAL DIFFUSION NETWORK

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INTRODUCTION

TRAINING MIGRANT PARAPROFESSIONALS IN BILINGUAL MINI HEAD START is a bilingual early education program for children preschool through third grade. The children served are from families of migrants or seasonal farm workers.

The program was started in 1971 under Intermediate School District 104 of Ephrata, Washington (an educational agency that has since been legally dissolved). It currently operates under Sunnyside (Washington) School District 201. Because the program is an interstate program it has an administrative office in both Washington and in Texas; two operating sites in Washington State and one site in Texas. The Texas site operates a mobile component in which the Texas staff (administrative and training staff, as well as teachers) relocate to northern work sites providing continuing services to children who move from Texas in the migrant stream.

This evaluation represents the eleventh in a series published for the Division of Bilingual Education in the Office of Education. (All previous evaluations are available in libraries through the ERIC system.)

The primary funding for this program is from the Division of Bilingual Education of the U.S. Office of Education.

This program is a nationally validated bilingual program by the Joint Dissemination Review Panel of the U.S. Office of Education.

The program is also a Developer/Disseminator program in the National Diffusion Network.

Final Evaluation of the 1976-77 Program Year

Number 11 in a Series

Published November, 1977

Report Prepared by Beverly McConnell, Evaluator

Evaluation Office: NE 425 Maple, Pullman, WA 99163

EXECUTIVE SUMMARY OF PROJECT FINDINGS

INSTRUCTIONAL COMPONENT

1. CHILDREN THREE TO FIVE WILL LEARN PRESCHOOL CONCEPTS.

   Project children superiority statistically significant after 100 days. Meets project goal.

2. CHILDREN LEARN HANDWRITING SKILLS.

   Project children superiority statistically significant after 200 days. Meets project goal.

3. SPANISH SPEAKING CHILDREN WILL IMPROVE IN SPANISH.

   Project children three through six superior scores in Spanish statistically significant after 200 days. Meets goal.

4. CHILDREN WILL BECOME INCREASINGLY BILINGUAL.

   More than 50% of project children classified "bilingual" based on comparative scores in both English and Spanish after 200 days. Meets project goal.

5. CHILDREN GAIN MATH SKILLS.

   Project children superiority after 200 days statistically significant age four through eight. Meets project goal.

6. CHILDREN WILL GAIN READING SKILLS IN ENGLISH.

   Project children superiority after 200 days statistically significant for both Spanish dominant and English dominant children at all age levels. Meets project goal.

7. CHILDREN LEARN OF THEIR CULTURAL HERITAGE.

   Project children superiority after 200 days statistically significant every age level. Meets project goal.

8. CONTINUITY CHILDREN WILL EXCEED CONTROL GROUP MATH AND READING.

   Superiority of mobile component project children in English reading over control group, not statistically significant at kindergarten or first grade, statistically significant by second and third grade. Partially meets project goal.

   Superiority of mobile component project children in math statistically significant at kindergarten through third grade. Meets project goal.

STAFF DEVELOPMENT COMPONENT

1. TEACHERS WILL MASTER IN-SERVICE TRAINING UNITS.

   Staff vacancies resulted in only 42% rather than 80% set in the project goal completing the required number of in-service training units. Goal was partially met.

2. FULL-TIME STAFF WILL CONTINUE ACADEMIC TRAINING.

   Out of 39 full-time personnel with less than a college degree when hired, 54% continued their academic training. As the goal was 80%, the goal was considered partially met.

3. TRAINING STAFF WILL RECEIVE TRAINING.

   Both new and experienced training staff received the specified training. The goal was met.

PARENT AND COMMUNITY INVOLVEMENT COMPONENT

1. FAMILY MEMBERS PARTICIPATE IN CHILDREN'S EDUCATION.

   A far higher percentage than the one-third enrollment capacity set as a project goal participated in the educational program at all three sites. Goal was met.

2. FAMILIES AND COMMUNITY MEMBERS PARTICIPATE IN PROGRAM MANAGEMENT.

   Analysis of minutes shows decision making in all five areas of program management by parent/community advisory groups at all three sites. Goal was met.

3. PARENTS PARTICIPATE IN PROGRAM EVALUATION.

   Parent evaluations were carried out at all three sites. Goal was met.

MATERIALS DEVELOPMENT COMPONENT

1. TRAINING UNITS PUBLISHED FOR DISTAR SPANISH CURRICULUM.

   Two units developed, field tested, revised, published. Goal met.

2. ACHIEVEMENT TESTS PUBLISHED FOR LANGUAGE, MATH, AND READING.

   Achievement test for Spanish language curriculum published. Goal met.

   Achievement test partially developed for Book 3 of math curriculum. Goal partially met.

   Achievement test extending reading test through Book 21 was deferred. Goal not met.

MANAGEMENT COMPONENT

1. THE PROGRAM WILL FOLLOW CHILDREN AS THEY MOVE.

   Eleven Texas teachers relocated, each serving five or more children who moved from Texas and were served at two or more sites. Goal was met.

2. COORDINATION WITH OTHER AGENCIES IN HOST COMMUNITIES.

   Coordination with school agencies in both year-round and temporary sites documented. Goal was met.

3. THE PROJECT WILL UTILIZE MULTIPLE FUNDING SOURCES.

   Besides the bilingual grant, project staff received operations funds from eight other sources in order to implement program in both Texas and Washington. Goal was met.

4. CHANGE ADMINISTRATIVE GUIDELINES CURRENTLY RESTRICTING INTERSTATE PROGRAMS FOR MIGRANT CHILDREN.

   Project staff carried out five major efforts to reach other school agencies and policy makers involved in migrant education. Goal was partially met.

***

INSTRUCTIONAL COMPONENT

GOAL 1. CHILDREN THREE TO FIVE WILL LEARN PRESCHOOL CONCEPTS.

THE NEED: Project children who enter the program as three-, four-, and five-year-olds are pretested on the Cooperative Preschool Inventory. This is a nationally standardized test originally developed to measure the outcome of Head Start programs. It measures concepts usually considered important as school readiness skills: the recognition of colors and shapes, the ability to understand and follow directions, number concepts, etc.

The project has compiled pretest scores of children who have entered the program at different ages over the past six years. These scores represent the level of skills project children would have demonstrated without benefit of the program. As shown in Figure 1 which follows, without the program three-year-old children had an average score at the 34th percentile--i.e., out of a national sample 34 percent of children had scores this low or lower. Four-year-old children had average scores at the 35th percentile. Five-year-old children served by the project averaged scores at the 45th percentile. In summary the target population for this program start out with preschool concept or school readiness skills in the lower half--almost the lowest third, compared to children tested in the national sample.

THE TEACHING PROCESS:

Curriculum Materials Used. The project combines concept and language learning using the DISTAR language series published in English by SRA. The first edition materials have been used, although all centers began switching to the second edition in 1977. The second edition is considered much improved over the first edition, especially for bilingual children.

A Spanish edition of the DISTAR curriculum was developed for the program by Bilingual Mini Schools (a private corporation), with the approval of SRA and thus far this project is the only field test site for the Spanish materials.

Teaching from the DISTAR Language curriculum. In addition to the published materials in English, the project is field testing a Spanish edition of DISTAR Language I. Concept learning is combined with oral language instruction for at least 20 minutes per day each in Spanish and in English.

In addition, the program has developed its own "Pre-DISTAR" series of lessons for the very young children (three and early four) in Spanish and in English. These materials begin with pointing responses and oral responses requiring only single words or two word phrases. This is used as a transition into the published DISTAR which almost from the beginning requires children to use whole sentence responses.

These are all oral lessons taught to a small group from a teacher presentation book. The concept content includes such things as comparisons (big, small, long, short); prepositions such as over and under; number concepts such as none, some, many; recognition of color and shape, etc. The lessons involve actions the children perform as well as oral responses. The picture presentations are supplemented by use of real objects to add meaning, especially for the younger children. Lessons are given in each language, at least 20 minutes a day in Spanish and another 20 minutes a day in English. In addition to these lesson periods, two or three unstructured learning periods (child choice) take place each day, and concept learning activities are used during these periods.

Teacher Training Used. The project has developed a two-part training unit to prepare teachers in the use of this material. It includes the skills to keep children attentive, and to insure mastery by individual children even though they are taught in a small group situation. It includes an observational instrument to record how lessons were actually taught, and the teacher must meet criterion on successful demonstration of each of the required teaching skills.

Testing for Mastery. The Englemann-Becker Corporation publishes a test in English to use with the curriculum materials to check children's mastery of materials. The project developed a comparable test in Spanish to go with the Spanish DISTAR. These are administered periodically by an outside tester with feedback given to the teacher to help in planning remediation if skills are weak. In addition, each lesson in the curriculum contains a "testing" step to check children's understanding.

PROJECT RESULTS: Figure 1, which follows, compares the national percentile ranking of children age three, four, and five who were tested before program experience and again after 200 or more days attendance. Compared to children nationally the project group ranks in the lower half initially. After project instruction of 200 or more days children in each age group have average scores in the top third compared to children nationally. The five-year-olds ready to start school are achieving average scores which rank them in the top 25 percent compared to national norms.

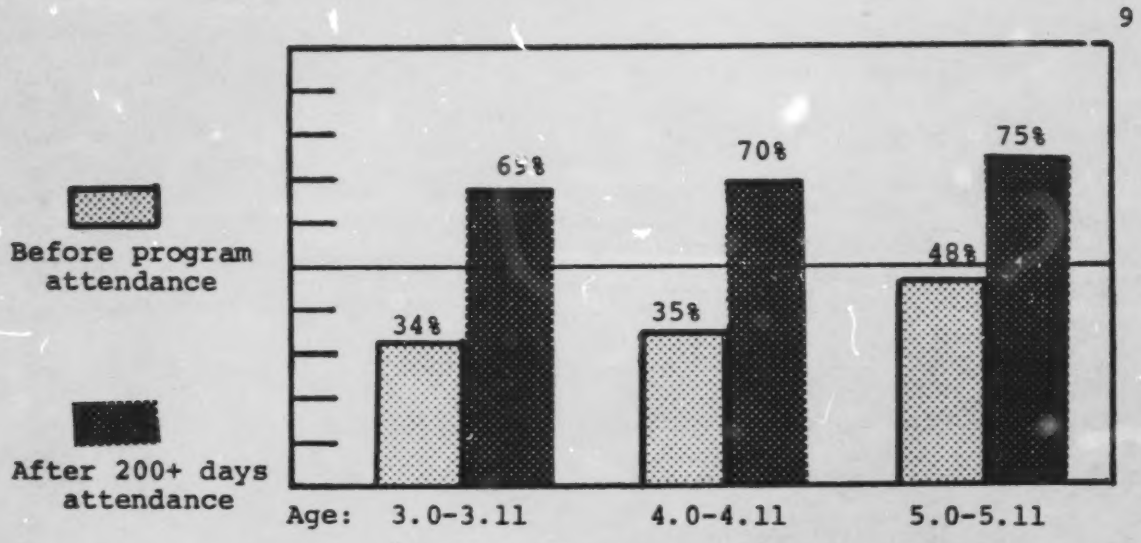


FIGURE 1. NATIONAL PERCENTILE RANK ON THE COOPERATIVE PRESCHOOL INVENTORY BEFORE PROGRAM ATTENDANCE AND AFTER 200+ DAYS ATTENDANCE BY AGE GROUP.

TO SUMMARIZE THE FINDINGS IN FIGURE 1:

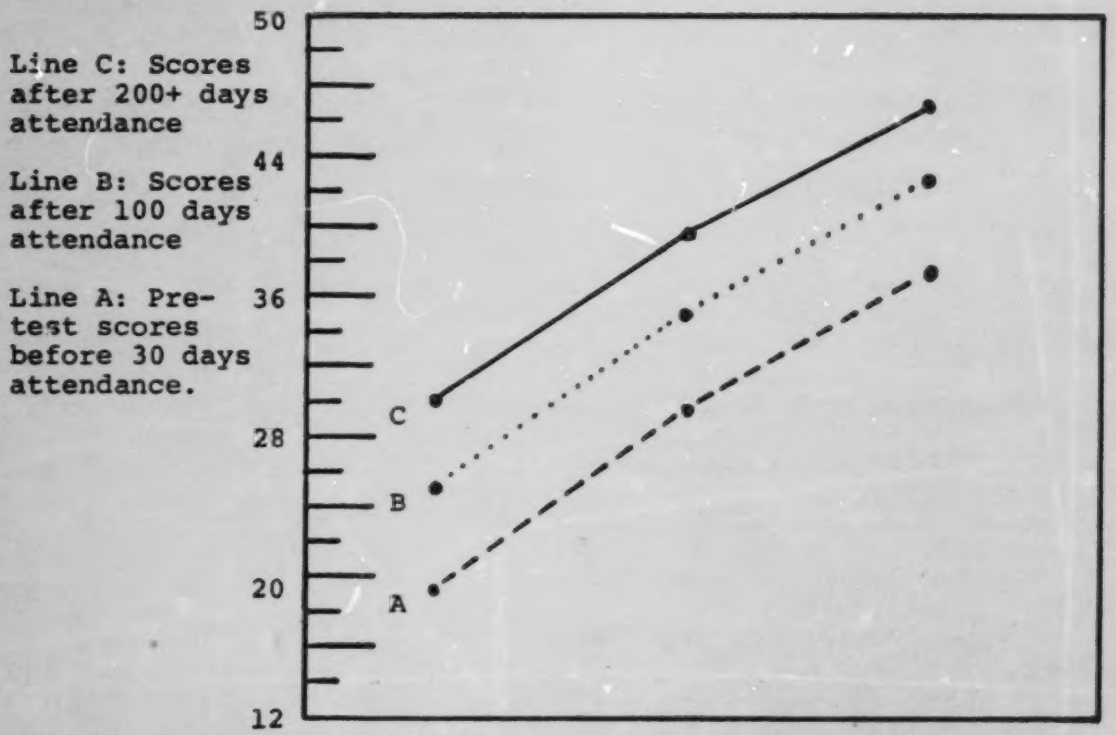
1. WITHOUT PROGRAM EXPERIENCE CHILDREN AVERAGED SCORES IN THE LOWER HALF ACHIEVED BY CHILDREN TESTED IN THE NATIONAL SAMPLE ON THIS TEST.

2. AFTER 200+ DAYS PROJECT EXPERIENCE CHILDREN THREE, FOUR, AND FIVE ALL AVERAGE SCORES IN THE UPPER THIRD COMPARED TO NATIONAL NORMS.

3. PROJECT CHILDREN READY TO START SCHOOL AT AGE FIVE HAVE PRESCHOOL READINESS SCORES IN THE TOP 25 PERCENT COMPARED TO NATIONAL NORMS.

Figure 2 below shows the progress of children after 100 and after 200+ days attendance. It is based on score correct on the 64-item Cooperative Preschool Inventory test. Line A indicates the expected level of scores without the program, based on pretest scores of project children accumulated over the past six years. Line B indicates the average scores of children tested at each age who had attended 100 days. And Line C indicates the average scores of children tested after 200+ days attendance.

The figure clearly shows that the longer the period of project attendance the greater the gain in mastery of preschool concepts measured by this test. The superiority of children after either 100 or 200+ days attendance over the pretest group of the same age is statistically significant beyond the .05 level called for in the project goal at all three age levels (e.g., the possibility that this much superiority would occur by chance rather than from program effect is extremely small). For additional detail on these findings, see Technical Appendix A.



Age when tested:	3.0-3.11		4.0-4.11		5.0-5.11	
Attendance group:						
Line C: 200+ days	N= 13	30.1	N=126	39.6	N=91	46.5
Line B: 100 days	N= 62	24.5*	N=110	34.9*	N=34	42.7*
Line C: Under 30	N=157	19.6*	N=104	29.6*	N=29	37.8*

*The superiority of this score over the norm group (pretest scores) the same age at the time of testing, is statistically significant beyond the .05 level. (Details in Appendix A)

FIGURE 2: COMPARISON OF SCORES ON THE COOPERATIVE PRESCHOOL INVENTORY BY PROJECT CHILDREN WITH DIFFERING PERIODS OF ATTENDANCE.

TO SUMMARIZE THE FINDINGS IN FIGURE 2:

1. AT EVERY AGE LEVEL CHILDREN WHO HAVE ATTENDED 100 DAYS (LINE B) SHOW SUPERIORITY OVER THE AVERAGE SCORES OF CHILDREN OF CORRESPONDING AGE TESTED BEFORE PROGRAM EXPERIENCE.

2. ATTENDANCE BEYOND 200 DAYS RESULTS IN CONTINUED IMPROVEMENT AT EACH AGE LEVEL.
3. THE SUPERIORITY OF CHILDREN AFTER EITHER 100 OR 200 DAYS ATTENDANCE OVER CHILDREN TESTED BEFORE PROGRAM EXPERIENCE IS STATISTICALLY SIGNIFICANT BEYOND THE .05 LEVEL CALLED FOR IN THE PROJECT GOAL.

CONCLUSION: Project goal: Project children age 3.0-5.5 will demonstrate superiority over norm group children of the same age that is statistically significant at the .05 level after 100 or more days attendance, on preschool concepts as measured by the Cooperative Preschool Inventory.

The project findings reported here show that this goal was met.

GOAL 2. CHILDREN LEARN HANDWRITING SKILLS.

THE NEED: Handwriting is included as part of the preschool readiness program. The project has measured entry skills of children since 1973 on visual-motor coordination skills as measured by the preschool level of the spelling subtest of the Wide Range Achievement Test. In this test the child is asked to copy 18 marks of increasing difficulty and print two letters of his name. A percentile ranking of scores is available for five-year-olds. The average score by project five-year-olds when pretested is 7.3 which places them at the fourth percentile compared to national norms, e.g., only 4 percent of the children tested at this age nationally had a score this low or lower. Norms are not available for children younger than five.

THE TEACHING PROCESS:

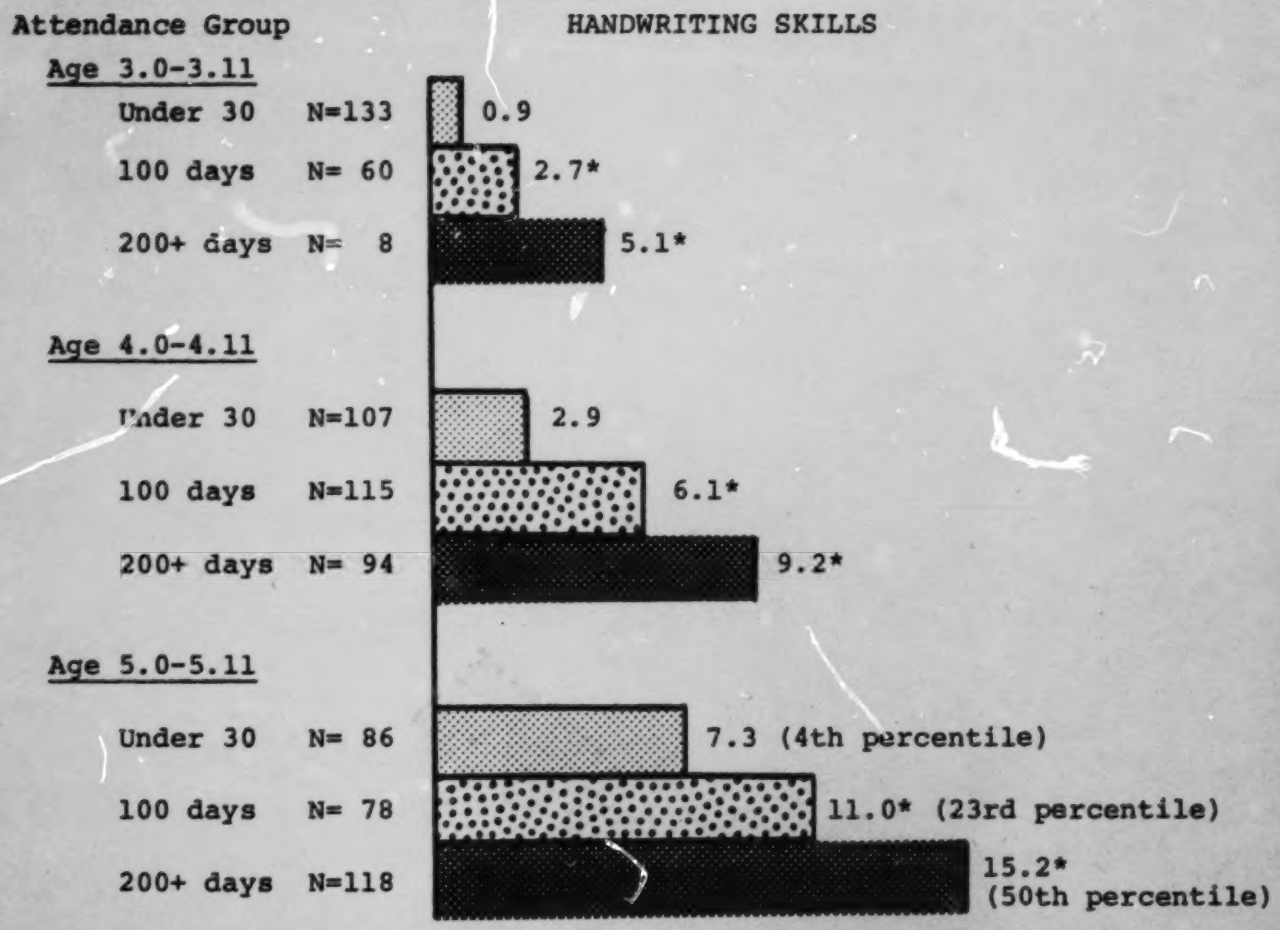
Curriculum Materials Used: The project uses curriculum materials developed by the University of Kansas for their Follow Through and Head Start programs. These consist of a series of 29 ditto masters from which practice handwriting sheets are duplicated by the project. With these the children shape their handwriting skills to greater levels of coordination. After completion of the "levels" as the University of Kansas materials are called, the children go into a project adapted version of a handwriting series that is now out of print, Lyons and Carnahan "Write and See." The project has resequenced these materials and added in-book tests which

teachers can use to check children's ability. For the youngest children not yet ready to hold a pencil, pre-handwriting exercises are given using chalk, crayons, etc. Children learn left-right sequencing and working from the top to the bottom of a page from this curriculum. Lessons approximately 10 minutes in length are given daily to preschool children.

Teacher Training Used: The project has two training units used with teachers in this curriculum area. The first deals with testing and placement of children in the curriculum; the second covers methods of teaching with these materials with children working individually at their own level within a small group setting. This deals with how to model the skills, how to check understanding, how to correct common mistakes, how to check the work, maintain interest, etc. Observations are made during actual teaching and a criterion level must be reached in the demonstration of all skills on the checklist.

Testing for Mastery: As in other curriculum areas, the project has developed a mastery test which is given by an outside tester with feedback to the teacher who can plan remediation if the skills are weak in some area.

THE RESULTS: Figure 3 which follows shows the average scores of children when they enter the program, of children who have had 100 days attendance, and children who have had 200+ days attendance. Each added period of attendance shows a sharp increase in skills, for each age group. National norms are available only for the children in the five-year-old group.



*The superiority of this score over the pretest group (under 30 days attendance) is statistically significant beyond the .01 level.

The percentile ranks relate to national norms.

FIGURE 3. MEAN RAW SCORES BY AGE AND ATTENDANCE PERIOD OF CHILDREN TESTED ON THE SPELLING SUBTEST OF THE WIDE RANGE ACHIEVEMENT TEST.

TO SUMMARIZE THE FINDINGS IN FIGURE 3:

1. EACH PERIOD OF PROGRAM ATTENDANCE IMPROVES THE HANDWRITING SKILLS OF PARTICIPATING CHILDREN.

2. THE SUPERIORITY IN AVERAGE SCORES OF CHILDREN AFTER EITHER 100 OR 200+ DAYS IS STATISTICALLY SIGNIFICANT (E.G., THE POSSIBILITY OF CHANCE OCCURRENCE EXTREMELY SMALL).

3. AMONG FIVE-YEAR-OLD CHILDREN THE IMPROVEMENT FROM THE 4TH TO THE 50TH PERCENTILE BY NATIONAL NORMS INDICATES THAT THE PROGRAM IS VERY POWERFUL IN BRINGING CHILDREN UP TO GRADE LEVEL.

Before program experience project children had very low scores in handwriting skills. Test results show that the project curriculum has brought children up to national norms.

As noted before, the average score of the children on pretests places them at the 4th percentile by national norms (only 4 percent of children in the national sample had scores this low). Children with 200+ days attendance have a score which ranks them at the 50th percentile. In summary, children who would have showed a severe deficit in this area are able, through the program, to reach school-age with skills up to national norms.

CONCLUSION: Project goal: Project children ages three to five, who have attended the program 100 or more days, will demonstrate a superiority over the project norm group of the same age which is statistically significant at the .05 level, based on the spelling subtest of the Wide Range Achievement Test.

The findings reported show this goal was met.

GOAL 3. SPANISH SPEAKING CHILDREN WILL IMPROVE IN SPANISH.

THE NEED: The need for continued instruction in Spanish is based on the expressed wishes of the families whose children are served by the program. They want their children to keep their Spanish language capability and to improve it.

THE TEACHING PROCESS:

Curriculum Materials Used: The project is the first field test site for the Spanish edition of SRA Language I, supplied by Bilingual Mini Schools, a private corporation, which translated the material with the permission of the publishers of the English edition, SRA. The project chose to use these materials because they are well programmed; that is, each new skill is practiced many times and then re-used as new skills appear. All skills are cumulative; they never disappear from the material. And because it is well programmed the children do not make frequent errors.

Spanish DISTAR is taught in a small group from a teacher presentation book which clearly outlines the dialogue used in teaching--a feature which is very helpful to a paraprofessional teacher. It involves a fast paced verbal exchange in which children would be expected to make from 150 to over 200 language responses during a 20-minute lesson period. Because the language responses require both phrases and whole sentences, the children learn to use the language with all its connecting words instead of learning an isolated vocabulary which often occurs with other language approaches.

Because the program accepts very young children, age three and four, a curriculum called "Pre-DISTAR" has been developed by the project. This curriculum begins with action responses and then requires one- or two-word responses. It is designed for children not yet ready for whole sentence responses utilized in the regular DISTAR series. Pre-DISTAR is in both Spanish and English.

Lesson periods in oral Spanish of approximately 20 minutes per day are given all children in the preschool program and up to first grade. (DISTAR Level I is appropriate to the first grade level. As Level II translation becomes available this year the project will extend the oral language program to the older schoolage children.)

In addition to the lessons in oral Spanish, all staff are bilingual and use both Spanish and English in the teaching of other subjects and in informal conversation throughout the day.

Teacher Training Used: The project has a two-part training unit to prepare teachers to use the DISTAR curriculum materials, both in Spanish and in English. It includes the skills of how to group children, how to elicit responses, how to correct errors, how to assure mastery by even the children weakest in language skills, how to maintain attention, etc. It involves a series of observations in which the interaction between teacher and child in actual teaching is recorded by a trainer, and a criterion level is set for demonstrated competency before the unit is "passed."

Formal lessons and informal activity periods stressing language development have enabled Spanish dominant project children to make striking gains in English, and to increase their scores in Spanish as well compared to the project norm group.

In addition the project has a training unit on "Developing Language Skills in Spanish and English" aimed at encouraging language growth throughout the day during informal interaction of teachers and children in child choice activity periods and transition times.

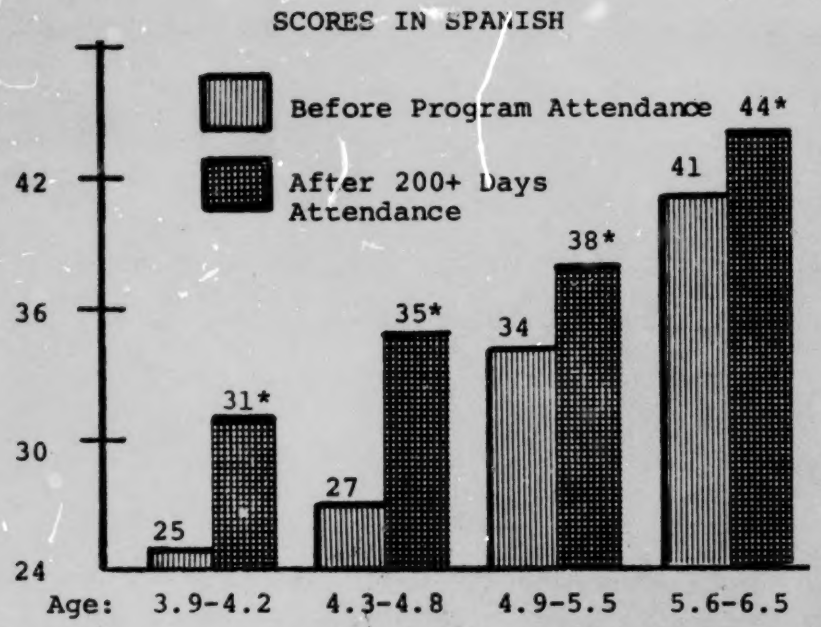
Testing for Mastery: The project has developed a mastery test for the Spanish DISTAR curriculum materials which is administered by an outside tester to provide feedback to teachers on how well the child has learned the lessons he has been taught. This feedback is used to plan specific remediation.

PROJECT RESULTS: Figure 4 which follows compares the scores in Spanish by the project norm group with that of children who had completed 200 or more days project attendance at the age tested. For a description of the project norm group see the Technical Appendix A.

At every age group the project children show a superiority in Spanish over children in the norm group who had not had project experience. This superiority is statistically significant at the .01 level, i.e., the possibility that this much superiority would have been found by chance less than 1 in 100.

CONCLUSION: Project goal: After 200 or more days attendance project children for whom Spanish is the primary language will show superiority over children in the project norm group of comparable age and language classification, which is statistically significant at the .05 level, as measured by the Peabody Picture Vocabulary Test, Form B, in Spanish.

The project findings reported show this objective was met.



*The superiority of this score over the comparison group of the same age is significant beyond the .01 level.

FIGURE 4: PEABODY PICTURE VOCABULARY SCORES (FORM B) IN SPANISH FOR CHILDREN BEFORE PROGRAM ATTENDANCE AND AFTER 200+ DAYS, BY AGE GROUP.

TO SUMMARIZE THE FINDINGS FROM FIGURE 4:

1. PROJECT CHILDREN ENROLLED IN THE SPANISH LANGUAGE CURRICULUM SCORE MUCH HIGHER IN SPANISH THAN SPANISH SPEAKING CHILDREN THE SAME AGE WHO ARE NOT RECEIVING INSTRUCTION IN SPANISH.

2. THE SUPERIORITY OF PROJECT CHILDREN IS STATISTICALLY SIGNIFICANT, I.E., THE POSSIBILITY THAT THIS MUCH SUPERIORITY WOULD OCCUR BY CHANCE LESS THAN 1 IN 100.

CONCLUSION: Project goal: After 200 or more days attendance project children for whom Spanish is the primary language will show superiority over children in the project norm group of comparable age and language classification, which is statistically significant at the .05 level, as measured by the Peabody Picture Vocabulary Test, Form B in Spanish.

The findings presented here show this goal was met.

GOAL 4. CHILDREN WILL BECOME INCREASINGLY BILINGUAL.

THE NEED: Of the project children who attended the program for 100 days or more through April, 1977, 67 percent were monolingual. The definition of monolingual was that when tested on the Peabody Picture Vocabulary Test in Spanish and in English, the child's score in whichever was his second language was so low (under 9 points) that it could have been achieved just by guessing. An additional 9 percent had a "fair" degree of bilingualism (over 10 points in the second language but less than 50 percent as high as the score in the primary language.) Only 23 percent entered the program classified as "bilingual," defined as having a score in the second language 50 percent or more as high as the score in the primary language. The project's goal, whether the children began with Spanish or English dominant, was to increase skills in the second language toward a functional bilingualism.

THE TEACHING PROCESS:

Curriculum Materials Used: As already noted under Goal 1 and Goal 3, the project combines a concept-language development curriculum using the DISTAR Language series in both Spanish and English. In English this is published by SRA and the program is using Level I and Level II. In Spanish the material was translated by Bilingual Mini Schools, a private corporation. At present only Level I is available in Spanish. The project will field test Level II when it becomes available.

In addition, the program has developed a Pre-DISTAR set of lessons to use with young children three and early four not ready to use the whole sentences required in the regular DISTAR. These materials have been described in detail in relationship to Goal 1 and Goal 3, and the reader is referred to this description.

In addition to DISTAR lessons in Spanish and in English both languages are used while teaching children the other academic subjects in the curriculum and informally throughout the day by teachers who are all bilingual.

Teacher Training Used: The reader is referred to Goal 3 for a description of the two training units relating to the DISTAR curriculum, and the one training unit related to developing language skills throughout the day in informal interaction with children.

Testing for Mastery: In English the project uses a mastery test published for DISTAR Language materials by the Englemann-Becker Corporation in Oregon. In Spanish the project has developed its own mastery test geared to the Spanish DISTAR curriculum.

THE RESULTS: Figure 5 which follows shows the increase in the percentage of children classified bilingual based on the length of their attendance in the project. Less than one-fourth of the children started the program bilingual. By 200 days attendance over half had become bilingual. For those attending 300 days, 70 percent had improved their second language sufficiently to be considered bilingual.

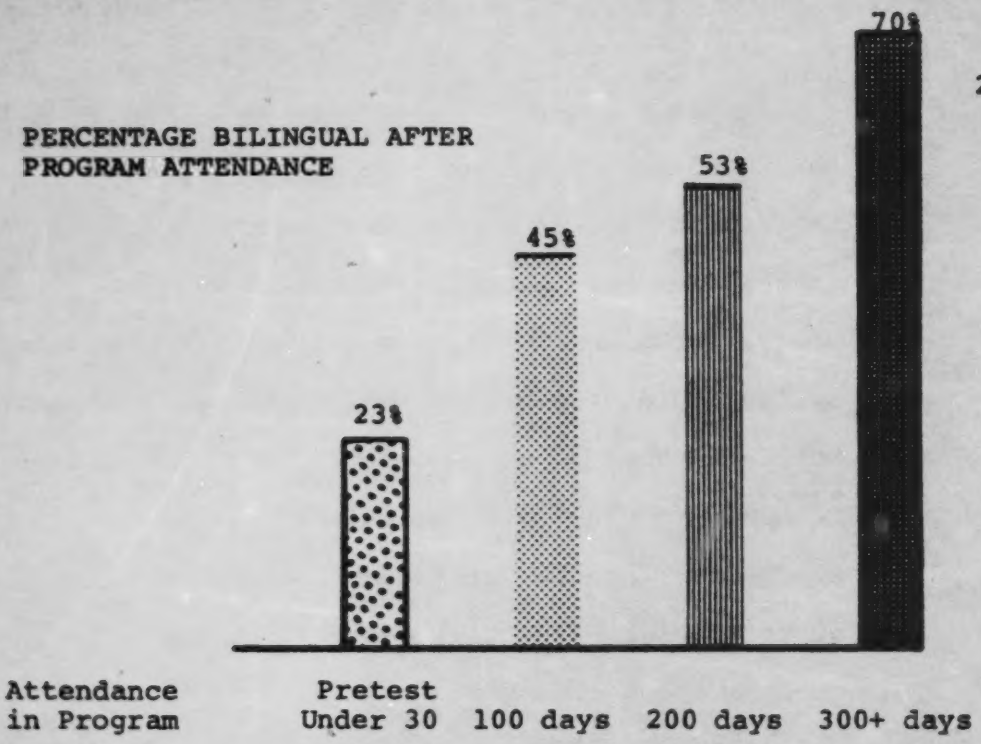


FIGURE 5. PERCENTAGE OF PROJECT CHILDREN WHOSE SECOND LANGUAGE SCORES ON THE PEABODY PICTURE VOCABULARY TEST, COMPARED TO THEIR SCORE IN THEIR PRIMARY LANGUAGE, CLASSIFIED THEM AS "BILINGUAL," AFTER DIFFERING PERIODS OF PROGRAM ATTENDANCE.

TO SUMMARIZE THE FINDINGS FROM FIGURE 5:

1. MOST PROJECT CHILDREN (77%) ENTER THE PROGRAM WITH A VERY LIMITED KNOWLEDGE OF A SECOND LANGUAGE. ONLY 23% START WITH SUFFICIENT KNOWLEDGE IN BOTH SPANISH AND ENGLISH TO BE CLASSIFIED "BILINGUAL" BY PROJECT DEFINITIONS.

2. EACH 100 DAYS PROGRAM ATTENDANCE INCREASES THE PERCENTAGE OF CHILDREN CLASSIFIED "BILINGUAL."

3. AFTER 200 DAYS THE MAJORITY OF CHILDREN HAVE REACHED "BILINGUAL" CLASSIFICATION, AND AFTER 300 OR MORE DAYS THE PERCENTAGE RISES TO 70%.

Figure 6 shows what happened to language scores of just the Spanish dominant children who entered the program. At the top it records the average score in English and in Spanish of children before program experience from ages 3 to 8. Scores for this norm group show that without the program English skills would be expected to lag far behind Spanish skills. Not until the age of 8 does the English score of norm group children come up to a "bilingual" classification--English score more than 50 percent as high as score in primary language Spanish. In the lower part of the figure it shows the comparative scores between English and Spanish of project children with 200+ days attendance. The scores in English of these children almost double those of children in the norm group. In all age groups, from three to eight years old, the comparison between average scores in English and Spanish would classify the children as "bilingual" (second language 50 percent or more than that of the primary language). By the age of eight the English and Spanish scores are quite close to equal, e.g., English score 89 percent as high as Spanish. While greatly increasing their English the children have maintained their Spanish scores--in most age classifications the score in Spanish is also much higher than the norm group children. These findings indicate that the program has been highly successful in producing children with bilingual language skills in Spanish and in English.

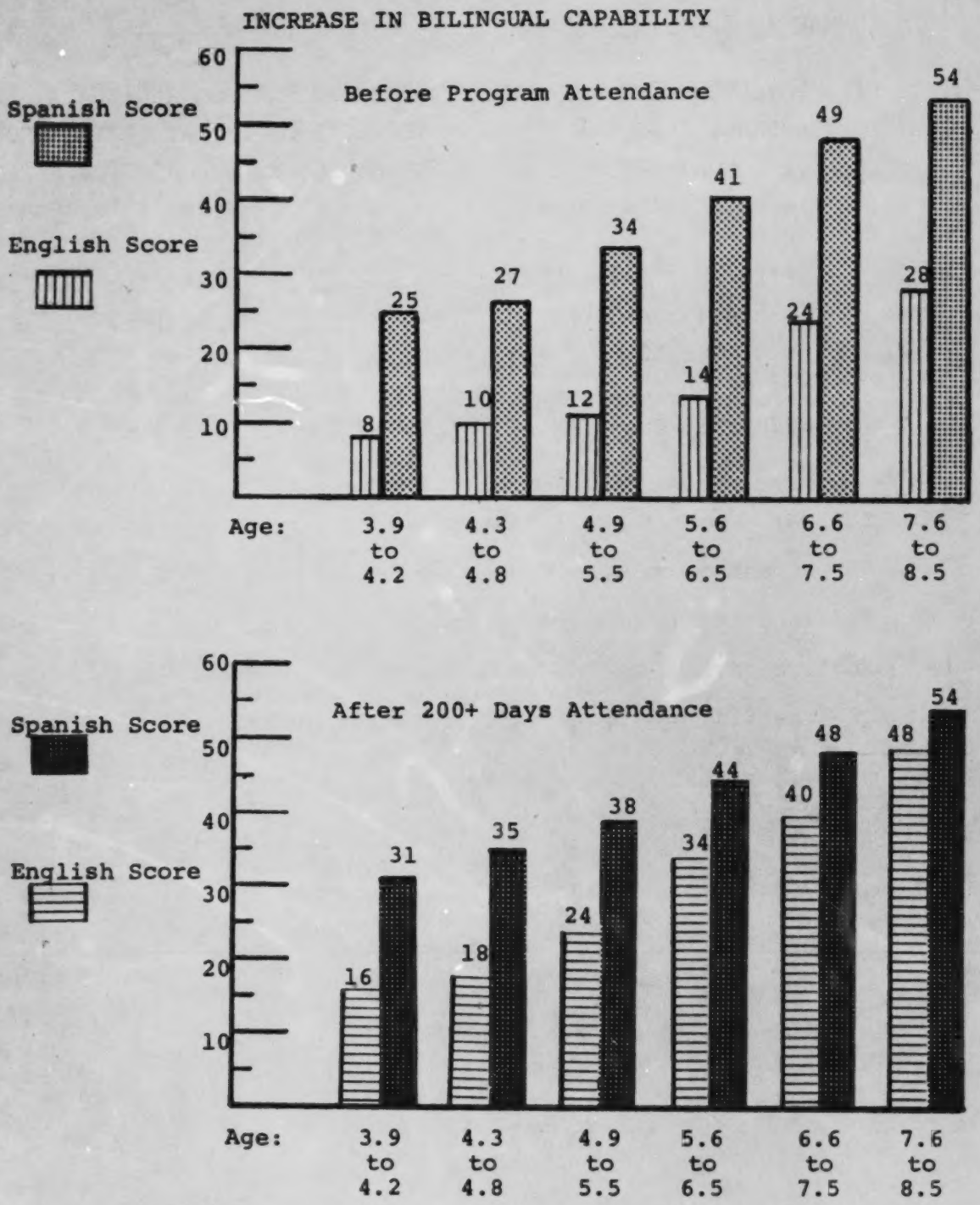


FIGURE 6: COMPARISON OF SCORES IN SPANISH (FORM B) AND IN ENGLISH (FORM A) ON THE PEABODY PICTURE VOCABULARY TEST BEFORE, AND AFTER 200+ DAYS PROGRAM ATTENDANCE.

TO SUMMARIZE THE FINDINGS IN FIGURE 6:

1. CHILDREN WHO HAVE ATTENDED THE PROGRAM FOR 200+ DAYS AVERAGE SCORES IN ENGLISH NEARLY DOUBLE THAT OF THE PROJECT NORM GROUP IN EVERY AGE CATEGORY. PROJECT CHILDREN IN MOST AGE CATEGORIES ALSO SHOW A SUPERIORITY IN SPANISH.

2. AFTER 200+ DAYS ATTENDANCE CHILDREN'S COMPARATIVE SCORES IN SPANISH AND ENGLISH CLASSIFY THEM AS "BILINGUAL" AT EVERY AGE LEVEL. (BILINGUAL=SCORE IN ENGLISH AT LEAST 50% OF SCORE IN SPANISH.) IN THE NORM GROUP CHILDREN WOULD NOT CLASSIFY AS "BILINGUAL" UNTIL AGE 8.

CONCLUSION: Project goal: After 200 days program attendance 50 percent or more of project children will be classified "bilingual" based on their comparative scores in Spanish and English on the Peabody Picture Vocabulary Test.

The findings here reported show that this goal was met.

GOAL 5. CHILDREN GAIN MATH SKILLS.

THE NEED: Children in the project norm group at the ages of five, six, seven, eight, and nine all averaged scores on the Wide Range Achievement Test, math subtest, that would place them below the 25th percentile according to national norms, e.g., only 25 percent of children tested in the national sample had scores as low as this on the test. This indicates that without the program this target population would have been expected to be far below national norms in math.

THE TEACHING PROCESS:

Curriculum Materials Used: Three- and four-year-old children begin with a project developed Pre-Math curriculum, in Spanish and in English. The format was adapted from a tutorial math series developed by Englemann-Becker Corp. in Oregon. It teaches numeral recognition, counting sequence, and the concept of equal. The teacher works with one or two children at a time, usually sitting with them at the end of a table in which the others in her small group are working on project developed independent table work. This independent work teaches the skills of circling, making X's, and connecting lines required in math workbooks; also of writing numbers and matching. The tutorial lesson usually takes from three to five minutes per student--the balance of the math period being spent in the independent work. Between individual tutorial lessons, the teacher works with the group checking understanding of the independent work they are doing.

From the pre-math series children move into consumable workbooks published by Random House under the trade name of Singer "Sets and Numbers." This series is based on set theory and is taught in units. The program is using this series up through the third grade level (the upper level in this series uses hard cover books instead of the consumable workbooks).

All of the math materials used can be completely individualized and a teacher can successfully work with a group all of whom may be on different pages or even in different books. Because of the disruptions in schooling experienced by a migrant population, the project used as one important criterion in the selection of curriculum materials whether the materials could be individualized.

The Sets and Numbers series are published in English only. This has presented no obstacle in their use by bilingual students taught by bilingual paraprofessional teachers. The teachers use both Spanish and English working with the students, for instructions, praise and correction, and in explaining concepts. Most of the mathematical terms and concepts are new to the children in whichever language they are encountered and the English terminology readily becomes part of their vocabulary. The project results later reported confirm that this is a very powerful teaching program in which all children, whatever their language dominance, are making outstanding progress.

Teacher Training Used: The project pre-math curriculum is programmed and the teaching dialogue is included as part of the

curriculum. The "Sets and Numbers" curriculum, however, is not programmed. The concepts must be taught by the teacher with the workbooks providing only practice after a concept is understood. The project found the published teacher manuals which were meant to show how to present the materials and how to use the workbooks not to be easy to understand by the paraprofessional staff. (This project employs teachers who are adults from the target population. Of the paraprofessional teachers about two-thirds have the equivalent of a high school education and one-third less than that by way of academic background. These are the only teaching staff used in the program--professional staff serve as trainers for the paraprofessional teachers but do not work directly with the children.)

Accordingly, the project has developed two very explicit training units in which the meaning of all math concepts and terms is covered, and the method of teaching these concepts is also taught. This includes how to check a child's understanding, how to make a correct placement, and how to individualize for children while teaching a small group. One is a background knowledge training unit; the other is an instrument for recording actual teaching interaction which is completed by the trainer. There is a criterion level for successful completion of both units. The two training units relate to the curriculum materials through grade two. An additional unit is in preparation which will cover books 3 and 4.

The project has developed two very specific training units to enable paraprofessional teachers to use the "Sets and Numbers" curriculum effectively. It also has a training unit in use of the number line. The child above is using a number line to solve a math problem.

In addition to these basic training units, the project has developed training on "Use of the Number Line" which has been found a useful prop in teaching children mathematical operations with this curriculum.

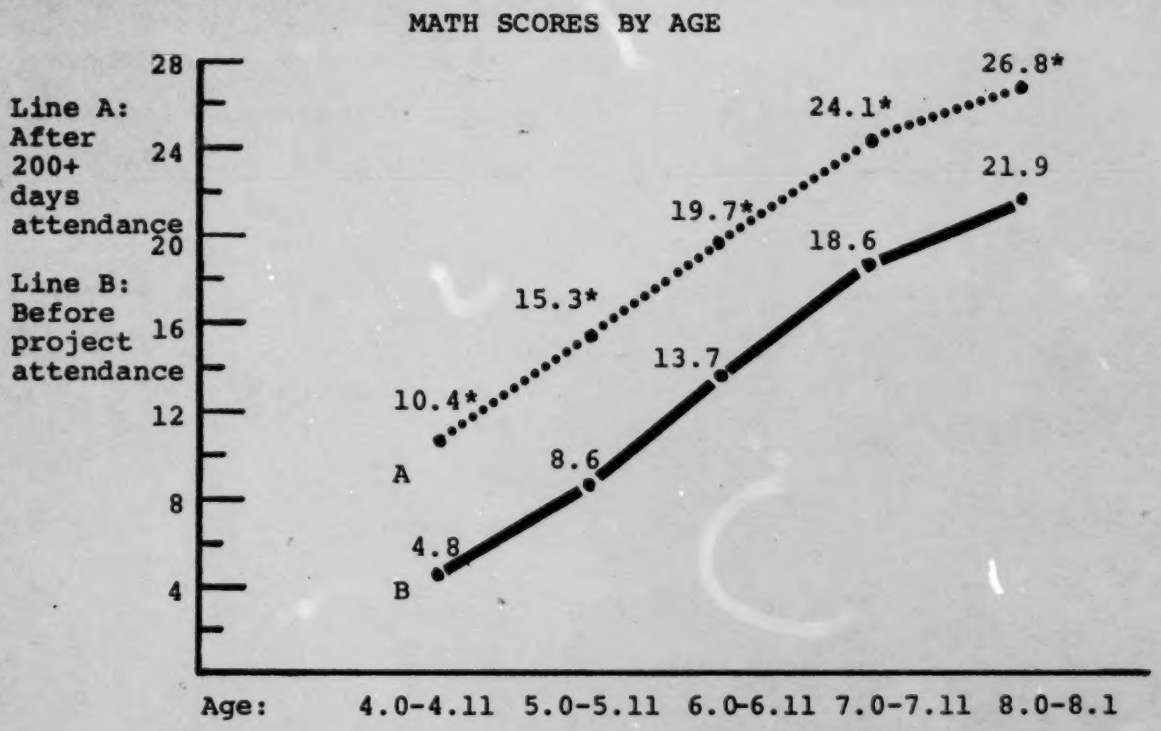
Testing for Mastery: The project has developed a test covering all basic concepts in the math curriculum. This test is in Spanish and English with questions asked in either language or both--whatever language is most comfortable for the child. This test is given by an outside tester with feedback to the

teacher. It is sometimes used as a means of placement for a child in the curriculum. It is also used to check mastery on material the child has covered, or to see what the child may have forgotten after an absence. With migrant children the disruptions of relocation cause the equivalent of the loss

Migrant children have frequent interruptions in their schooling. During these times the child may forget important concepts. The paraprofessional tester shown here is using one of the mastery tests which the project has developed in every curriculum area to see if the child has a solid mastery of concepts he has been taught.

which settled children experience after vacation periods--only many more times a year. The project developed the mastery tests as part of the curriculum approach out of the belief that migrant children suffer more than most children in their educational progress by missing some key concepts on which later work is dependent. They may forget them; they may never learn them because of the different sequencing and organization of learning materials experienced in changing schools. The mastery tests provide the means of giving specific remediation, and assuring that the child masters all the concepts needed to build a strong base in his early academic experience.

THE RESULTS: Figure 7 which follows shows on a graph the average score achieved by the norm group (see technical Appendix A for description of the norm group) who did not have project experience. Above this is graphed a line showing the superiority in average scores by the children who had 200+ days attendance at the comparable age level. At every age group the superiority of the project children over the norm group of comparable age is statistically significant at the .0005 level; e.g., the possibility that this much difference would occur by chance less than 5 in 10,000.



*The superiority of this score over the score of children the same age before project experience is statistically significant beyond the .0005 level.

FIGURE 7. SCORES OF PROJECT CHILDREN ON THE MATH SUBTEST OF THE WIDE RANGE ACHIEVEMENT TEST BEFORE PROJECT ATTENDANCE AND AFTER 200+ DAYS ATTENDANCE, BY AGE LEVEL.

TO SUMMARIZE THE FINDINGS IN FIGURE 7:

1. AT EVERY AGE LEVEL THE MATH SCORES OF PROJECT CHILDREN AFTER 200+ DAYS ATTENDANCE IS MUCH HIGHER THAN SCORES OF THE PROJECT NORM GROUP THE SAME AGE.

2. THE SUPERIORITY IS STATISTICALLY SIGNIFICANT AT A VERY HIGH LEVEL, FAR EXCEEDING THE PROJECT GOAL.

CONCLUSION: Project goal: After 200 or more days attendance, project children will show a superiority over children the same age in the project norm group that is statistically significant at the .05 level, as measured by the math subtest of the Wide Range Achievement Test.

Findings presented here show this goal met and exceeded.

GOAL 6. CHILDREN WILL GAIN READING SKILLS IN ENGLISH.

THE NEED: Scores of children in the project norm group, without program experience, reflect the "expected" level of achievement in reading by the project group. According to national norms, five-year-old children had reading scores below the 14th percentile, six-year-old children below the 12th percentile, seven-year-olds below the 14th percentile, and eight-year-olds below the 7th percentile--e.g., 7 percent of the children in the national sample had an equivalent score or one lower at a corresponding age. This represents the expected level of achievement of this target population of children without a special program.

THE TEACHING PROCESS:

Curriculum Materials Used: At the preschool level children begin the pre-academic reading program using the University of Kansas Primer, which was developed for the Behavior Analysis Follow Through programs. This is a phonetic approach which introduces the children to 15 basic sounds (or single letter words "I" and "A"). It also teaches going from left to right and from the top to the bottom of a page, and the basic skill of blending sounds. With these word attack skills the child is able to begin in the Sullivan programmed reading series (published by McGraw-Hill). Once into Sullivan, the children can work in a completely individualized program at their own pace.

The Sullivan material was selected for several reasons. It uses a phonetic approach with a controlled vocabulary so

that initially the child only has to remember one sound for each letter (apart from a limited number of irregular words which are taught as sight words). This is especially helpful to children whose home language is Spanish since they do not have to cope with all the complexities of the different sounds which letters take in English until after they have mastered the skills of word attack, etc., essential to reading.

The curriculum materials are programmed so that the children have a great deal of review built in. The picture illustrations in the workbook are usually clear and uncluttered so a child for whom English is a second language is helped in comprehension. In the workbooks the children read a sentence and fill in a word or letter as appropriate, or circle an answer to a comprehension problem. They can then check their answers by pulling down a slider in the margin which reveals the correct answer. Since the child can check and correct his own work each can proceed at his own pace. A teacher is easily able to work with a small group of children each working on a different page, even different books (there are 21 books in the series).

Teacher Training Used: As in the other curriculum areas, the project has developed specific teacher training materials which largely replace the teachers' manuals put out by the publisher, in helping the paraprofessional staff understand the techniques required to teach the materials effectively. The project has one training unit for the Phonics Primer, and two training units for the Sullivan reading.

A fault some other projects have found with the Sullivan curriculum materials is that they are essentially geared to silent reading and that the children do not get sufficient experience in oral reading; also that the children may learn how to pronounce words but need more attention to comprehension. The project training units specifically train teachers in how to use the materials to get regular practice for children in reading aloud, and how to check comprehension as they circulate a group.

Testing for Mastery: The project has developed an achievement test related to the Phonics Primer and to the Sullivan reading curriculum. The child is tested with sections of the test that relate to the lessons that have been taught in the two or three-month period preceding the test. Feedback is given to the teachers and to the trainer. If these tests show a child to be having difficulty with material, the trainer is able to assist the paraprofessional teacher in how to present the concept or skills involved.

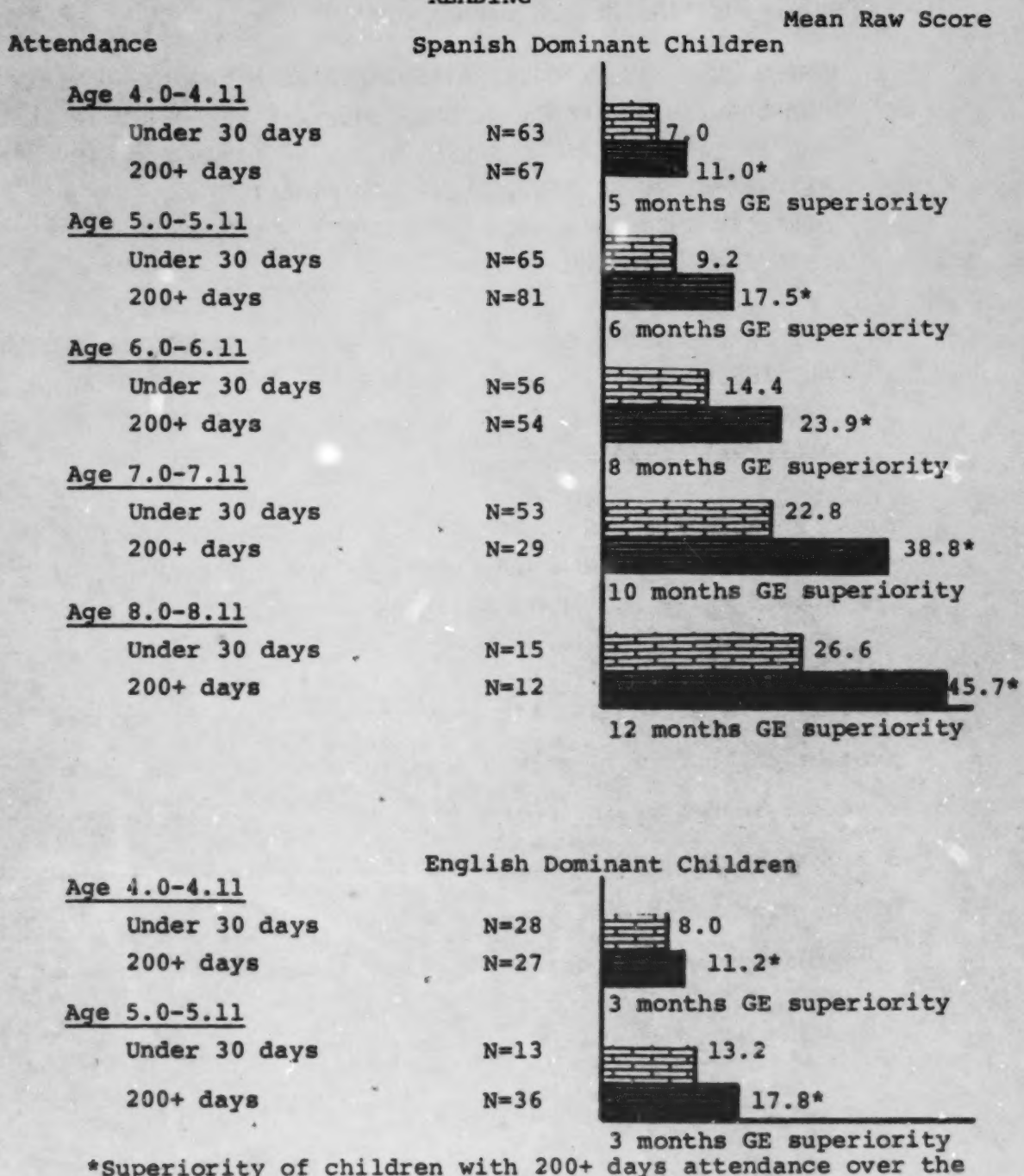
THE RESULTS: It was assumed that whether the child was Spanish dominant or English dominant would have a bearing on the amount of progress made in learning reading in English. For the evaluation of reading progress, therefore, results are reported separately for Spanish dominant and English dominant children. However, statistical analysis was only done if there were at least 10 children in an age and attendance subgroup. Since relatively few English dominant children are

admitted to the program there were only enough for analysis at ages four and five. Figure 8 which follows compares the average score of norm group children (no program experience) with children who have attended 200+ days.

The comparative scores presented show superiority of the project children at every age level, both for Spanish dominant and English dominant children. Before program experience, the English dominant children in the norm group have slightly higher scores than the Spanish dominant norm group. After 200+ days attendance both groups of project children have equivalent scores; both considerably higher than the norm group in either language classification. The superiority of all project children after 200+ days attendance over the norm group of the same age is statistically significant beyond the .01 level, e.g., possibility less than one in 100 that this much superiority could be explained by chance.

Figure 8 also shows the grade equivalent score for each age group and calculates the superiority in grade equivalent rank for the project children after 200+ days attendance. This analysis is important because it shows that the advantage of project children is increasing each year. At age four the difference is a few months. By age eight project children have reading skills more than a full year ahead of the project norm group.

READING



*Superiority of children with 200+ days attendance over the norm group children of the same age is statistically significant beyond the .01 level.

FIGURE 8. SCORES ON ENGLISH READING SUBTEST OF THE WIDE RANGE ACHIEVEMENT TEST, BY AGE, ATTENDANCE, AND LANGUAGE DOMINANCE SUBGROUPS.

TO SUMMARIZE THE FINDINGS IN FIGURE 8:

1. AFTER 200+ DAYS PROJECT ATTENDANCE BOTH ENGLISH DOMINANT AND SPANISH DOMINANT CHILDREN SHOW A SUPERIORITY IN READING IN ENGLISH, AS MEASURED BY THE WIDE RANGE ACHIEVEMENT TEST, THAT IS STATISTICALLY SIGNIFICANT, E.G., THE POSSIBILITY THAT THIS MUCH SUPERIORITY WOULD OCCUR BY CHANCE LESS THAN 1 IN 100.

2. THE GRADE EQUIVALENT DIFFERENCE BETWEEN PROJECT CHILDREN AND THE NORM GROUP TENDS TO INCREASE EACH YEAR, INDICATING THAT PROJECT CHILDREN ARE MAKING READING GAINS AT AN ACCELERATING RATE.

3. THE PROGRAM SEEMS TO BE BENEFITTING BOTH SPANISH DOMINANT AND ENGLISH DOMINANT CHILDREN, WHO HAVE COMPARABLE TEST SCORES AFTER 200+ DAYS ATTENDANCE.

CONCLUSION: Project Goal: After 200 or more days attendance, project children will show a superiority over children the same age in the project norm group that is statistically significant at the .05 level, as measured by the reading subtest of the Wide Range Achievement Test.

Findings here reported show that this objective was met.

GOAL 8. CHILDREN LEARN OF THEIR CULTURAL HERITAGE.

THE NEED: The need for learning concepts related to a child's culture is not based on test scores, but on the wishes of family that the children learn about the history and culture associated with their two languages. Over 95 percent of the children served have one or both parents who are Mexican or Mexican-American, and Spanish is used in the home and community as well as English.

THE TEACHING PROCESS:

Curriculum Materials Used: Cultural concepts are taught informally and formally. All teaching staff have been selected from the same bicultural background as the students and the children therefore have role models sensitive to their own cultural background. Foods of both Mexican and U.S. culture are served and discussed informally. Classroom decoration and wall murals show clothing and scenes characteristic of both cultures.

Formally, the instruction is given during scheduled group times (music, dance, stories taught at these times) and lesson time. Regular academic subjects are replaced about twice a month with activities related to culture that require formal planning and preparation such as art activities, or discussions about holidays or national symbols. Periodic "festivals" involving families are developed with culturally related activities (art, costumes, dance, music). Child choice activity periods each day must regularly include among the choices culturally-related activities--particularly storybooks and

arts and crafts activities as well as dress-up roleplaying types of activities.

The project has developed a book with activity guides related to Mexican culture, which is being edited and will be available at cost for use by other programs. Project staff have also developed a series of kits of materials (patterns for projects and background materials) related to U.S. culture as well as the cultures of several other countries--i.e., "Chinese New Year," "Danish Christmas," etc., as the program intent is to increase multicultural awareness.

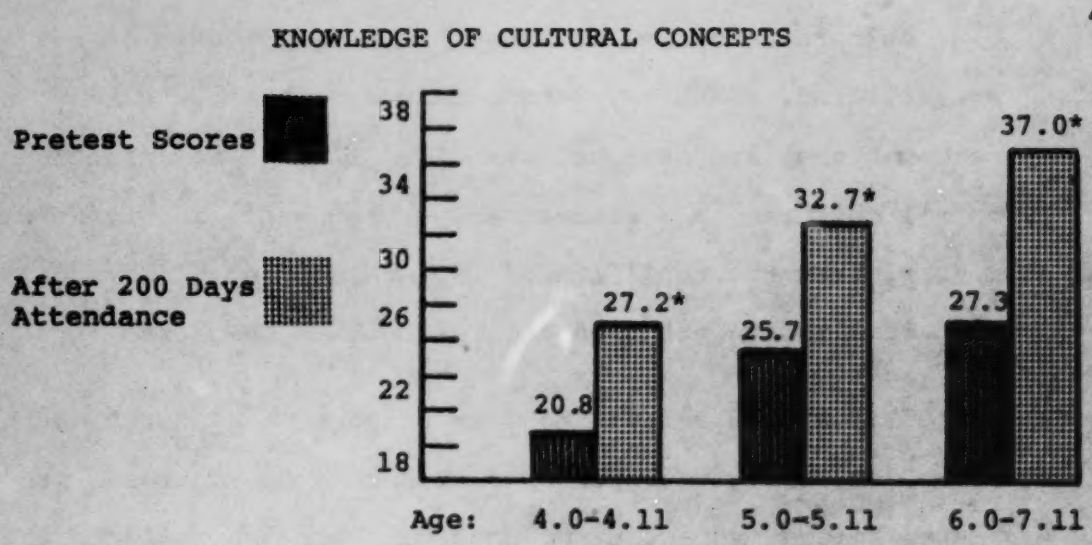
The weekly reports submitted by the teachers are used to monitor the regular inclusion of culturally related activities. Because teachers have their choice of activities within the general guidelines the program cannot be more exactly described for possible replication.

Teacher Training Used: The project has one training unit on teaching skills related to presentation of cultural materials. This does not deal with the specifics of the content of the lesson but guidelines on how to involve the children through actions and speech which will keep their interest and also check their understanding.

Testing for Mastery: The project developed a test of cultural concepts (The BMHS Test of Cultural Concepts). This is a 44-item test, using word cues and music cues to which the child is asked to select one of four pictures as the most appropriate answer. Half of the items relate to Mexican culture using Spanish word cues; half of the items relate to

U.S. culture using English word cues. It relates to six areas: food, clothing, songs, dances or games, holidays or celebrations, and national symbols. This is administered to all children as a pretest and subsequently is given twice a year, with the results used for evaluation. Individual test results are not used for feedback to teachers.

THE RESULTS: Figure 9 which follows compares the scores on the BMHS Test of Cultural Concepts of norm group children pre-tested before project experience, and project children who had attended the program for 200+ days. This indicates that at each age level the program has produced a gain in cultural knowledge as measured by this test. The superiority of children in the 200+ day evaluation group over the project norm group is statistically significant beyond the .001 level, e.g., the possibility 1 in 1,000 that superiority this large would occur by chance.



*Scores given are correct answers out of 44-item test. The superiority of the project group over the norm group at this age is statistically significant beyond the .001 level.

FIGURE 9. COMPARISON OF SCORES ON THE BMHS TEST OF CULTURAL CONCEPTS BETWEEN PROJECT CHILDREN WITH 200+ DAYS ATTENDANCE AND THE PROJECT NORM GROUP.

TO SUMMARIZE THE FINDINGS IN FIGURE 9:

1. IN A TEST OF CULTURAL CONCEPTS RELATED TO THE UNITED STATES AND MEXICO, PROJECT CHILDREN AFTER 200+ DAYS ATTENDANCE SHOW SIGNIFICANTLY GREATER KNOWLEDGE THAN CHILDREN PRETESTED BEFORE PROJECT EXPERIENCE.

CONCLUSION: Project Goal: After 200 or more days attendance, project children will show a superiority over children the same age in the project norm group that is statistically significant at the .05 level, as measured by the BMHS Test of Cultural Concepts (project developed).

Findings reported here show that this goal was met.

GOAL 8. CONTINUITY CHILDREN* WILL EXCEED CONTROL GROUP.

THE NEED: One component of this program is the "mobile component." In this component children in the south Texas town of La Grulla are surveyed to see what northern locations their families expect to move to during the migrant season. Adults from migrant families going to an area where a cluster of children are going are then recruited as teachers in the mobile component. During the winter months this teacher is trained and works with children while they are in La Grulla. When the migration begins, approximately in March, teachers move north as the children do, and new locations are found to resume instruction in the north.

For preschool children an all day center is operated in Texas and in the north. If another preschool program is available in the northern location the children go into it, and the mobile teacher is assigned to work in that center with arrangements being made to allow the mobile teacher to continue working in the bilingual curriculum with the children being followed from Texas for about two hours per day. For children in public school, space is used in the school and release time arranged so that the mobile teacher can work with the child from one to two hours per day. This is done in Grulla as well as in northern schools in which the child will enroll so that

*Continuity children are project children in the mobile component who were enrolled both in Texas and in one or more northern locations under mobile teachers who moved with them from site to site.

the same curriculum can be used in both locations. In this way the children have continuity both in the methods of teaching and in the curriculum materials used from one school location to the next.

One advantage of the mobile component delivery system is that the child has a consistent approach to basic subjects, reading and math, even though changing schools. Continuous progress can be made in the materials without the usual breaks resulting from registration, placement testing, locating textbooks, etc., which disrupt the schooling of most migrant children. Because the child has a familiar teacher the anxiety of changing schools is presumed to be less. The child receives some instruction in all basic subjects in the regular program, so that the work done under teachers in the mobile component amounts to reinforcement of learning in basic areas. It was presumed that the advantages enumerated above would result in substantial progress by children in the mobile component over that of other mobile migrant children who do not have this continuity in their education as they change schools in the yearly migration. The special study was therefore set up to compare scores on the Wide Range Achievement Test in math and reading for "continuity" children in the project, and a control group of mobile migrant children from a neighboring south Texas town.

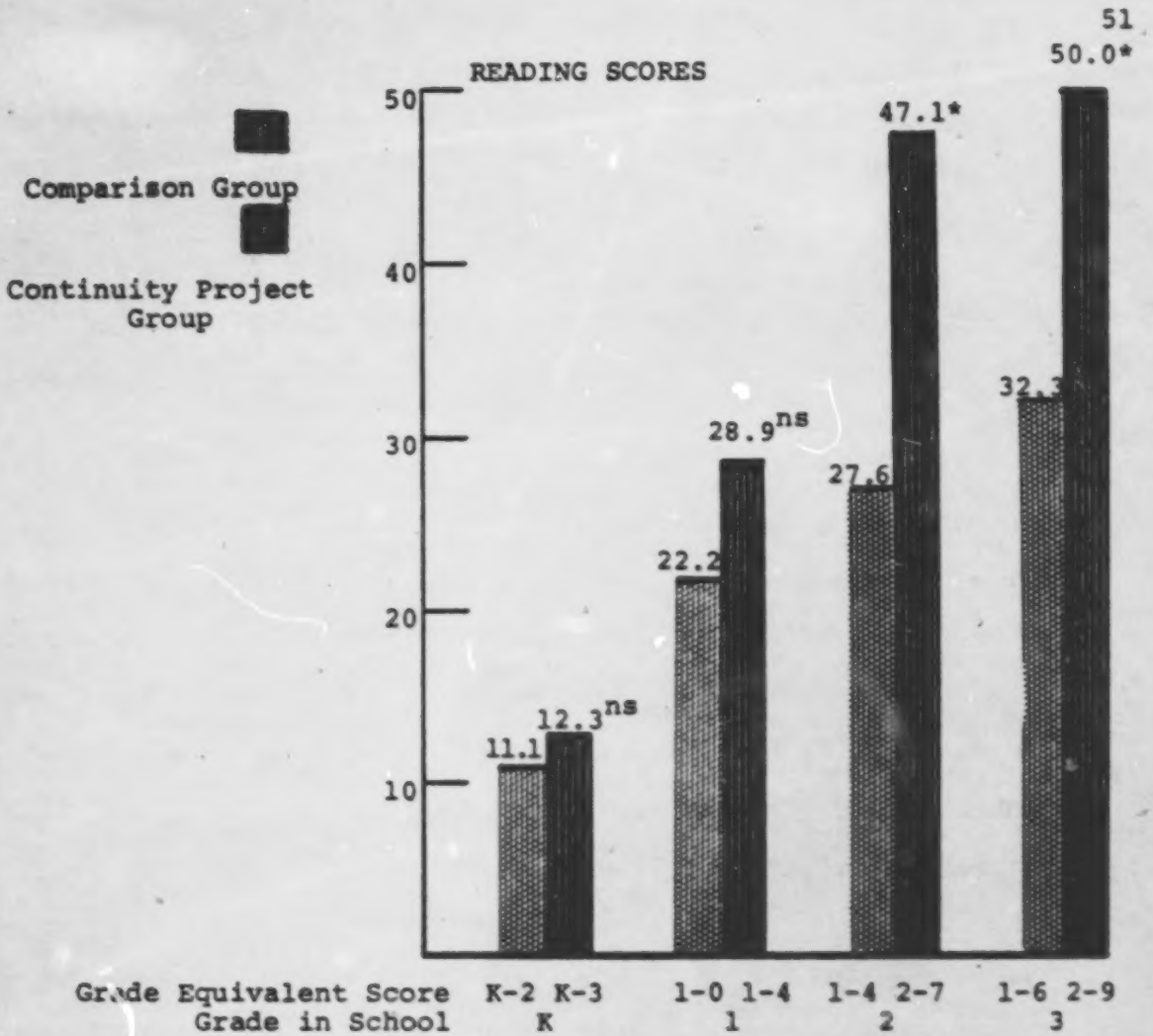
THE TEACHING PROCESS: The mobile component uses the same curriculum materials and teaching methods as have been described elsewhere in this evaluation.

THE RESULTS: Project children considered "continuity" children were required to be school-age, to have been served both in Texas and in one or more northern sites, and to have attended the project for at least 200 days by January, 1977, when the testing was done. The control group children were in kindergarten through third grade from a neighboring community to La Grulla, Texas. In the control group were included children who were Spanish dominant, and who had approximately the same socioeconomic level as project children because the families leave home each year to migrate in search of seasonal farm work in other places.

Figure 10 compares scores on Reading in English. The scores in kindergarten are not much different. The grade equivalent score of project children is one month ahead of the comparison group. Statistically the differences in the two scores are not significant, i.e., the project children are somewhat superior but the error range in testing could account for the difference. By first grade the grade equivalent superiority of continuity children is three months, but the difference in scores is still not statistically significant. By second grade the grade equivalent score of continuity children is 12 months higher than the comparison group. By third grade the grade equivalent superiority of continuity children is 13 months (one and a third school years) over the migrant children in the comparison group. Both of these differences are statistically significant at a very high level.

It should be noted that this result repeats the pattern of reading scores in the project wide evaluation (Goal 6) in that

the superiority escalates as the children move up in school. At the third grade level project children in the continuity group are about half a year below national norms. However, the comparison group children by third grade are two full years below national norms on reading skills in English. The project has therefore not completely overcome the disadvantage for learning to read in English of Spanish dominant project children, but it has made a very significant improvement in that performance over what would have been expected without the program.



ns = The superiority of this score over the control group at this grade level is not statistically significant.

*The superiority of this score over the control group at this grade level is statistically significant far beyond the .05 level.

FIGURE 10. COMPARISON BETWEEN ENGLISH READING SCORES ON CONTINUITY CHILDREN AND A CONTROL GROUP OF CHILDREN, BY GRADE LEVELS, ON THE WIDE RANGE ACHIEVEMENT TEST.

TO SUMMARIZE THE FINDINGS IN FIGURE 10:

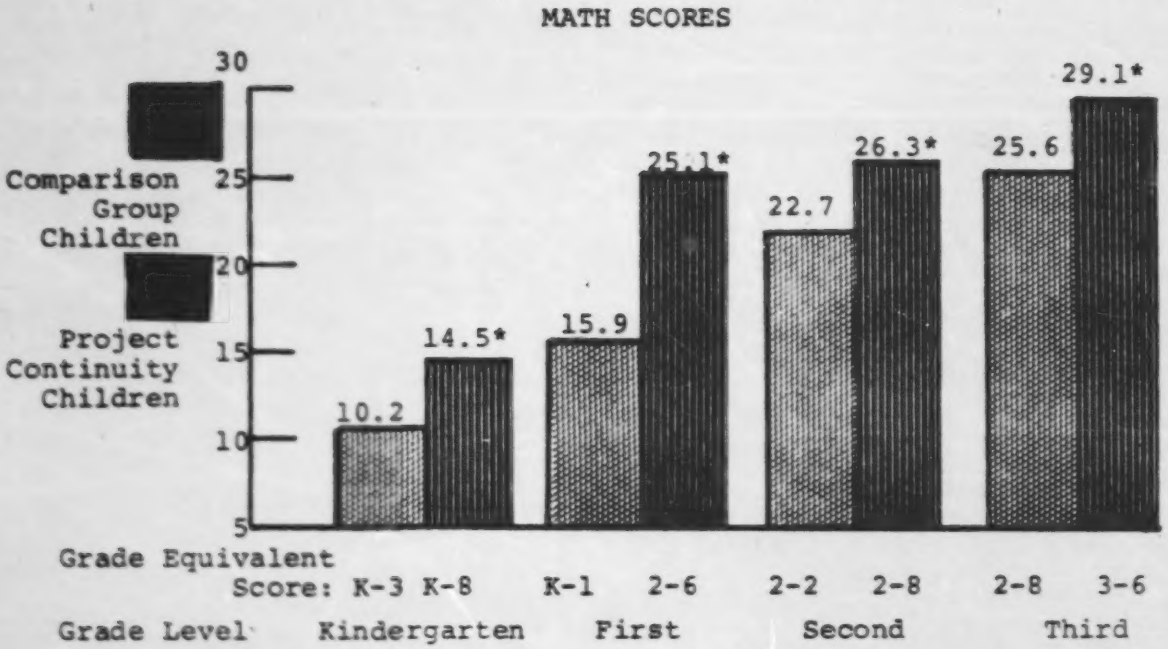
1. PROJECT "CONTINUITY" CHILDREN HAVE HIGHER SCORES IN READING IN ENGLISH AT EVERY GRADE LEVEL.

2. THE SUPERIORITY OF CONTINUITY CHILDREN OVER THE CONTROL GROUP IS LARGE ENOUGH TO BE STATISTICALLY SIGNIFICANT BY SECOND AND THIRD GRADE.

3. THE GAP BETWEEN THE READING SKILLS OF PROJECT CHILDREN AND THE CONTROL GROUP GETS WIDER EACH YEAR AS THE CONTROL GROUP CHILDREN DROP FARTHER BELOW NATIONAL NORMS EACH YEAR.

Figure 11 shows the progress of continuity project children and the comparison group in math scores, measured by the Wide Range Achievement Test. In math at every grade level the superiority of the project continuity children over the comparison group is large enough to be statistically significant far beyond the .05 level which was set in the project goal. As the tests in this comparison study were taken in January, the grade equivalent scores by grades to equal national norms should be K-5, 1-5, 2-5, 3-5. The average scores of the project continuity children is higher than this at every grade level. The comparison group children math scores fall below national norms at each grade level with children averaging scores 7 months below national norms by the third grade.

Interpreting these scores, the disadvantage to Spanish dominant migrant children is not as great in math as it is in reading in English; nonetheless migrant children without a special program are nearly a year behind by third grade. The project math program appears to be quite powerful bringing project children up to and above national norms.



*The superiority of this score over that of the comparison group at this grade level is statistically significant far beyond the .05 level.

FIGURE 11. COMPARISON OF SCORES IN MATH OF PROJECT CONTINUITY CHILDREN AND A COMPARISON GROUP OF MOBILE MIGRANT CHILDREN, ON THE WIDE RANGE ACHIEVEMENT TEST.

TO SUMMARIZE THE FINDINGS IN FIGURE 11:

1. MATH SCORES OF PROJECT CONTINUITY CHILDREN ARE HIGHER THAN THE COMPARISON GROUP AT EVERY GRADE LEVEL. THE SUPERIORITY IS LARGE ENOUGH TO BE STATISTICALLY SIGNIFICANT BEYOND THE .05 LEVEL.

2. THE GRADE EQUIVALENT SCORE FOR PROJECT CONTINUITY CHILDREN IS HIGHER THAN THE NATIONAL AVERAGE AT EVERY GRADE LEVEL (TESTS ADMINISTERED AT THE FIFTH MONTH OF THE SCHOOL YEAR).

3. AT THE THIRD GRADE LEVEL PROJECT CONTINUITY CHILDREN GRADE EQUIVALENT SCORES ARE ALMOST A FULL YEAR ABOVE MIGRANT CHILDREN IN THE COMPARISON GROUP.

CONCLUSION: Project Goal: Project children who have been enrolled in one or more northern locations in addition to enrollment in Texas, and who have attended the program for 200 days or more since November 1973, will show a superiority over comparison group children in math and reading as measured by the Wide Range Achievement Test that is statistically significant beyond the .05 level.

Findings reported here show that this goal was met at every grade level in math, and in the second and third grade only in reading in English.

INSTRUCTIONAL COMPONENT

PROCESS OBJECTIVE 1.10. TEACHERS FOLLOW APPROPRIATE SCHEDULES

GOAL 1.10: Each teacher will present lessons to assigned children following a daily and weekly schedule that meets the program criteria as verified at least semi-annually by schedule review reports submitted to the evaluator by the supervising training staff.

ACHIEVEMENT CRITERIA: The goal will be considered met if documentation of schedule review is on hand for at least 80% of the teacher-groups reported for the mid-year or final evaluation.

PROGRESS REPORT: This goal was met for two of the three operating sites: Moses Lake and the mobile component at Grulla and in northern operating locations. The mobile component was particularly faithful in submitting and reviewing schedules with each change in location or major change in children served throughout the mobile phase. The trainer at Connell failed to submit any scheduling reviews during this program year so the adequacy of scheduling at this site cannot be evaluated. The goal is considered partially met.

PROCESS OBJECTIVE 1.11. TEACHERS WILL USE APPROVED CURRICULUM

GOAL 1.11: Teachers will present lessons to assigned children using project approved curriculum materials in every subject area as verified by reports mailed by each teacher to the evaluator each week giving the end of week placement of every child in each of the curriculum areas he has been taught.

ACHIEVEMENT CRITERIA: The goal will be considered met if documentation of weekly progress of children is available for at least 95% of the weeks of program operation by all teachers.

PROGRESS REPORT: Weekly curriculum reports were received from all teachers from all sites for each week of program operation. These indicate regular progress by children through each of the designated curriculum materials. The goal is considered met.

PROCESS OBJECTIVE 1.12. TEACHERS USED APPROVED TEACHING METHODS

GOAL 1.12: At least 80% of teachers who have been employed four months or longer will meet all the criteria on project developed monitoring instruments of teachers' usage of appropriate instructional procedures at least once during each evaluation period.

ACHIEVEMENT CRITERIA: The goal will be considered to have been met if at least 80% of the teachers employed four months or longer has a rating of satisfactory for each of the monitoring instruments (the MALTO and DLT) on use of appropriate instructional procedures.

PROGRESS REPORT: This objective was changed in that the DLT (dual language teaching) monitoring unit was discontinued. The MALTO (maintaining active learning teacher observation) was used approximately once every two months for teachers at Moses Lake and at Grulla and the mobile sites. Eighty percent or better of the teachers at each of these sites did have at least one rating of satisfactory on this instrument meeting the project objective. The trainer at Connell did not use the monitoring instrument so the objective was not met for teachers at this site. The objective is considered partially met.

STAFF DEVELOPMENT COMPONENT

GOAL 2.1. TEACHERS WILL MASTER IN-SERVICE TRAINING UNITS.

THE NEED: This program was originally designed to provide an educational service that could move with children whose families migrated to do seasonal farm work. By training adults in these migrant families to become the children's teachers, it was possible to provide some continuity in their educational experience. As they moved from place to place the adult migrant teachers moved also and lessons in the bilingual curriculum continued from one location to the next.

At project sites in Washington State year-round programs were set up. However, adults from the families of the target population (mobile migrants and settled out migrant families) were also used as teachers in these locations. They shared the language background and life experiences of the children served and there are few professional teachers in the area where these programs are located who meet this criteria.

Most of these paraprofessional teachers have no previous teaching experience and an academic background of high school or its near equivalent. It was therefore necessary to design an intensive training program that would quickly give them the skills necessary to become effective teachers.

THE TRAINING PROCESS:

Training Materials Used: All of the training units were developed by the project. There are approximately 20 units in current use.

The project has an orientation unit which gives teachers the most fundamental information about each curriculum taught. This enables them to be assigned a group of children and begin teaching from the first week, with all the remaining training done on an in-service basis. There are a few training units that cut across academic areas, such as use of positive reinforcement, classroom management techniques, making unstructured (child choice) activity periods into productive learning time.

The remainder of the training focuses very specifically on the curriculum used in the different academic areas taught. The program uses commercial curriculum materials for reading, math, and language instruction. It found that the teacher's guides published with these curriculum materials were not very useful to the paraprofessional teachers in our program. In general the teachers felt the guides were "too wordy" and "full of jargon" which couldn't be understood without an academic background in education. Some training, therefore, replaces guides by explaining the concepts that are being taught in the curriculum. Other training covers techniques of presentation appropriate to each curriculum, such as: how to model a new concept, how to check the child's understanding, how to assign independent work, how to make corrections, etc.

The Training Process: Five steps are used in the training process.

First step: The trainer reviews a discussion guide which the trainees have read. This guide explains the teaching

methods to be used, using many illustrations of teacher dialogue (in Spanish and in English). There are discussion questions included to check understanding. The trainers use role playing to demonstrate the techniques called for in the training unit.

Second step: Trainers observe teachers informally a few days after a presentation. If their teaching shows they have not understood something, the trainer uses step-in modeling with their group of children to further demonstrate the required skills. Project experience has been that teaching skills are most rapidly acquired by imitation.

Third step: Trainers do formal observations using a form which asks for description of teaching methods and actual dialogue in reference to all key teaching skills in that unit. After the observation, a conference is held with the trainee at which the teaching performance is reviewed from the observation form, reinforcing good performance and making limited suggestions for change or improvement. At least two observations are done, and more may be required before a teacher is found to be consistently demonstrating most of the teaching skills in that unit.

Fourth step: A review of the series of observations is done to fill out a checklist indicating whether each key skill has been consistently demonstrated by the trainee. The checklist sets a criterion for "passing" the training unit.

Fifth step: After a training unit has been completed, the trainer uses a shortened form of the observation periodically to monitor whether teaching skills are being maintained. If

the trainee does not pass a monitoring unit, selective retraining is done.

The initial training process takes six to eight weeks per training unit. This time schedule takes into account the practice time needed by the trainee, and the necessity for the trainer to supervise seven or more trainees. Sometimes training can be carried out with group presentations (a new training unit which no trainee has had for example). More often a trainer works with one or two trainees at a time, since new trainees are usually hired one at a time as needed and must receive the entire training sequence.

THE RESULTS: During the 1976-77 program year 36 teachers were included in the in-service training program. Of these, 15 (or 42%) completed at least one training unit for every two months of teaching. This is short of the project goal which required that 80% of the teachers complete training at the pace of one unit each two months.

Part of the reason for this shortfall was discontinuity in funding. The first five-year period of funding under Title VII (which supports the training staff) ended June, 1976. The project applied for continued funding in competition with new projects and was refunded, but with a substantial reduction in funding level and with a fiscal year starting September 1. Because of multiple funding, the project was able to hold the program together during the two month gap but with reduced staff. There were two training staff vacancies in the Texas-mobile component until November. Additional

time needed to train the new trainers delayed full implementation of training until January. From that time an intensified training effort was carried out with the result that by the cut-off date for the evaluation in June, 15 teachers had met or exceeded the training goal, 9 more were just one unit short of the goal.

CONCLUSION: Project goal: At least 80 percent of teachers on permanent staff appointment will complete an in-service training unit at criterion level as documented by two or more training observation forms plus a unit checklist given a passing score by the trainer, on the average of at least one unit for every two months of project service.

The findings reported indicate that this objective was partially met.

GOAL 2.2. FULL-TIME STAFF WILL CONTINUE ACADEMIC TRAINING.

THE NEED: Teaching staff for this program are bilingual adults from migrant or formerly migrant families. Preference is given in hiring to applicants who have completed high school or a GED. During the evaluation year 22 of the 36 teachers (61%) did have a high school diploma or GED (some had obtained the GED through the program). A few teacher trainees hired had some college background; none had completed a college degree. All teacher trainees hired must be willing to continue their academic training.

THE TRAINING APPROACH: The project manager (in Washington State) and the educational director (in Texas) have made arrangements for staff to obtain GED training. This is sometimes done by bringing a teacher to the site, and sometimes by enrolling staff in classes in the community.

In the past an arrangement has been worked out with Columbia Basin College through which nearly all teaching staff were enrolled for college courses. (People working on their GED were also allowed to enroll for college courses up to a certain credit limit.) The content of these courses was submitted for approval by the college, after which the project training staff was utilized to provide the actual instruction which was incorporated into the in-service training program. In June 1976, however, Columbia Basin College discontinued this service to the program. A Seattle college offered to pick up the program, but the mechanics were never worked out

with the result that no college program was implemented for the Washington State based trainees.

In Texas, the educational director arranged for some staff to take courses through Texas A and I. The project bus transported these staff members on the approximately 40-mile trip to the University's extension site at Weslaco. Because of the northern migration, teachers missed several weeks out of each semester and special arrangements had to be made for more frequent classes during the remaining weeks in each semester to get in the required number of class hours.

THE RESULTS: The project had 36 teachers and three full-time support staff with less than a college degree. Of these, 11 took work toward their GED during the pgoram year. The project in Washington State was unable to arrange on-site college courses during the year, so this aspect of the program was not implemented for any of the Washington based staff. The Washington person took college courses by attending at night, at her own expense, and commuting a 60-mile round trip to classes. In Texas, seven staff members commuted 80 miles round trip to attend college courses, arranged through the project. Two others took night courses arranged by themselves at Pan American College, a 70-mile round trip commuting distance. The total continuing academic training is 21 or 54% of the total full-time staff with less than college background.

CONCLUSION: Project goal: At least 80% of project full-time staff who have less than a college degree when hired, will continue

their academic education through enrollment in GED courses and/or college courses.

The findings reported above indicate that this goal was partially met.

GOAL 2.3. TRAINING STAFF WILL RECEIVE TRAINING.

THE NEED: The project's training materials and methods require specific orientation of training staff to develop necessary background and skills.

TRAINING APPROACH: The project has developed two training units to orient a new trainer to the project curriculum and training materials, and to develop skills in demonstration, observing, and conferencing trainees. It has developed one monitoring unit which is used to review the knowledge and training skills of an experienced trainer to see if they are adequate in all curriculum areas.

The first trainer unit is a background unit to evaluate the trainer's knowledge of the rationale and content of all of the curriculum and training materials, and is evaluated with a quiz. The second training unit and the monitoring unit are performance instruments evaluating the trainer's ability to demonstrate teaching techniques, take observations (obtaining inter-observer reliability), and do effective conferencing. Each has a criterion performance level specified in the instrument.

THE RESULTS: During the program year two new trainers were hired. Both completed the two training units with performance far above the required standard. Both the experienced trainers had been monitored with the monitoring unit, meeting the project goal.

CONCLUSION: Project goal: All trainers employed by the project for six months or longer will demonstrate knowledge of the curriculum, and skills in demonstrating, observing, and conferencing teachers, at criterion level on the appropriate trainer training unit as observed and evaluated by the project resource trainer.

The findings reported above indicate this goal was met.

PROCESS OBJECTIVE 2.4. CONTINUOUS TRAINING OPPORTUNITIES OFFERED

GOAL 2.4: The resource trainer and trainers will provide continuous training to the staff for which each is responsible, as documented by weekly training reports submitted to the project manager and the evaluator. The project manager will arrange college and GED opportunities for staff, as documented by semi-annual reports made to the evaluator.

ACHIEVEMENT CRITERIA: The goal will be considered to have been met if all documentation mentioned above has been received and examination shows all specified activities taking place.

PROGRESS REPORT: The goal was met by the resource trainer in providing appropriate training to all new and old training staff. The trainer at Moses Lake provided continuous training throughout the year, meeting this goal.

The trainer positions in the Texas-mobile component were vacant for almost a four-month period during which time the resource trainer filled in. There was a gap of about a month in training while his efforts were concentrated on preparing the new trainers, after which training of teaching staff resumed.

At Connell training activity was discontinued for the period of July through October, then resumed. Because of the gaps in training at Connell and at Texas this goal is considered only partially met.

The project manager was unable to arrange the college courses during the 1976-77 program year to continue the academic program which had been successfully implemented for a number of years up to that time. The educational director in Texas was able to arrange an alternate college program for some Texas based staff. In both Texas and Washington State arrangements were made for staff who needed continuing work on their GED, so the academic training goal was partially met.

PARENT AND COMMUNITY INVOLVEMENT COMPONENT

GOAL 3.1. FAMILY MEMBERS PARTICIPATE IN CHILDREN'S EDUCATION.

THE NEED: A growing number of education studies have by now shown that maximum benefits for children can be obtained only through the combined efforts of the child's family and the school. The children served in this program include in the meaning of the word family the child's extended family of grandparents, godparents, aunts, and uncles, etc., in addition to the nuclear parent family. In the past most migrant families have never felt comfortable enough with schools to take an active part in their children's education. The project has therefore had to structure ways in which families can participate, and solicit their involvement.

THE INVOLVEMENT APPROACH: As already noted, the teaching staff used by this program is made up entirely of adults recruited from the migrant families served. These are paid, full-time teaching positions. Every center site has a parent/community advisory group and one of the functions of this group is to have a committee which screens and recommends applicants for teaching positions. By law the school board has final authority over selection of all personnel. In practice, the recommendation of the screening committee has always been followed. The screening committee is made up of the elected representatives of the parents, plus the trainer, site coordinator, and educational director.

The primary way in which the project involves parents on a volunteer basis is on a voucher system. Parents serve volunteer hours for which they sign a voucher. These vouchers are submitted to the project and payment is made to the parent group (not the parent who contributed the time). These volunteer hours earn $2 per hour for the parent group treasury. Once earned, the parent group has full control over the use of these funds. The Texas group has chosen to save nearly all of the parent fund money for use in remodeling of a facility that will become a permanent center site. In Washington State both centers have used parent funds to purchase equipment for which there were no project funds available. The money has also been used for gifts for staff or children, and for loans to families encountering some emergency.

Some family member volunteers have served as substitutes or teaching assistants. Many have helped with field trips and special programs. At the Texas site parents were invited in individually to spend a half day. During this time an experienced teacher met with the parent, explained the educational program, involved them with the children's activities. At the end of this time the parent helped the program by completing an evaluation form commenting and making suggestions about all aspects of the program observed. This method of bringing parents in by invitation on a specific day was found superior to issuing a "visit any time" invitation ("any time" can be indefinitely put off). It also seemed better than having parents always coming in groups for programs or special

events (group visitation efforts so disrupted the program that the parents were not really seeing the day by day functioning of the program involving their children).

In addition to direct involvement in the children's educational program (i.e., in ways that brought parent and child in contact), many family members provided volunteer "support" services to the program. A support service was an activity such as making shelves or playground equipment, doing laundry, assisting in the kitchen--any type of activity to help the program that did not directly involve the children.

THE RESULTS: Required to meet this goal is participation by family members equal to one-third the enrollment capacity of each center. The enrollment capacity for each site (preschool and school-age) averaged 70-90 children. One-third this number would require 25-30 parents participationg to meet the project goal, for each site. The following table shows actual participation by center, and by type of activity which far exceeds the one-third goal. Many parents provided repeated and varied services to the program.

TABLE 1

FAMILY PARTICIPATION IN CHILDREN'S EDUCATIONAL PROGRAM

Center	Family Providing Support Services	Family Providing Educational Help	Unduplicated Number Helpers
Connell	31	48 (69%)	57
Moses Lake	33	31 (44%)	45
Texas (mobile)	11	50 (56%)	60

CONCLUSION: Project goal: Family members equal to at least one-third of the enrollment capacity at each site will participate in their children's educational program through (a) the center instructional program as a teacher or assistant, (b) assisting with cultural heritage programs, (c) home or evening activities organized to involve parents with children in educational activities.

The findings reported above show this goal was met.

GOAL 3.2. FAMILIES AND COMMUNITY MEMBERS PARTICIPATE IN PROGRAM MANAGEMENT.

THE NEED: In order to maintain program operations to best meet the needs of the participants, and integrate the resources of the community, families and community members need to be involved in program decision making.

THE INVOLVEMENT PROCESS: There is an organized parent/community advisory group at each of the three sites.

In Connell and Moses Lake, Washington all the parents of children enrolled in the program are members. They, in turn, elect officers as well as official representatives of the community. Each group has written bylaws and meets approximately monthly throughout the year.

In Texas the parents group chose to incorporate. Instead of officers they elect a five-member board made up of parents and members of the community, with the project educational director serving as its executive officer. Their purpose in incorporating as the "La Grulla Migrant Coop" was to have a group which could legally apply for grant funds for related programs. During the mobile phase when La Grulla residents have mostly all moved north to various locations doing seasonal farm work, if official business needs to be taken up, the educational director and/or site coordinator for the Texas site contacts board members by telephone and business is conducted in this manner.

In addition to the five-member board, however, the Texas site holds general meetings of parents in order to discuss

center operations, proposals, etc. During the northern phase when mobile centers are operating at temporary sites the site-coordinator may hold a series of meetings at the labor camps or at the centers where our children are served.

In order for parents to have information on the project from which to make decisions all staff report to the parent groups. Each published evaluation is submitted to parent/community advisory groups for review. The trainer and some teachers as well as the site coordinator usually attend all meetings to report on how the program is doing. Usually once or twice during the year some teachers will do a curriculum demonstration for the parents, and sometimes videotaped lessons are shown. The project manager is responsible for submitting outlines of plans that would go into proposals for advisory group discussion and review prior to submission of any funding proposal.

THE RESULTS: The Connell, Washington site held eight parent meetings plus one screening committee meeting to hire new staff. Moses Lake, Washington site held nine parent meetings plus one screening committee meeting to select staff. Both sites suspended meetings during the summer months because nearly all parents were both working and many work swing shift in the processing plants which operate 24 hours per day. The different shifts make it difficult to find a meeting time when many people can attend.

The Grulla site held five business meetings during the home base period September through March. It held one meeting

at the Basin City, Washington site during the work phase in June.

The project goal specifies that the minutes of these meetings shall be analyzed to see if decision making occurred at each site in at least four out of five areas specified on the table which follows.

TABLE 2

CONTENT ANALYSIS OF ADVISORY COMMITTEE MINUTES

(a) Organizational matters (voting for officers, meeting time, parent group activities, etc.)

CONNELL: 3/77 plan for parents to make aprons, set meeting date, sign-up for repairs at center. 4/77 elect officers 9/76 plan Halloween party.	MOSES LAKE: 9/76 date set for elections. 10/76 elect officers, plan party. 11/76 plan Thanksgiving dinner 3/77 plan making of aprons.	TEXAS (at Basin City): 6/77 discuss and vote support for medical clinic at Basin City.

(b) Review proposals

CONNELL: 1/77 discuss plans for refunding proposal, vote to add reading in Spanish.	MOSES LAKE: 2/77 Review plans for URRD proposal.	TEXAS (at Grulla): Discuss new Title I proposal plans. 3/77 Discuss URRD and Title VII proposal plans.

(c) Personnel actions

CONNELL: 10/76 Screening Committee review candidates for two teacher trainees, one cook position.	MOSES LAKE: 1/77 Personnel Committee, three candidates considered for teacher trainee.	TEXAS (at Grulla): 10/76 Review and approve personnel under CETA funding. 11/76 Review and approve more CETA personnel.

(d) Use of parent funds

CONNELL: 9/76 Vote to build up parent funds buy van or car. Vote to pay expenses for equipment purchases.	MOSES LAKE: 1/77 Use parent funds for cost of pictures.	TEXAS (at Grulla): 9/76 Approve use of parent funds to pay plane fare to Wash. D.C. by project evaluator.

(e) Discussion of educational program and evaluation of progress

CONNELL: 9/76 Discuss transportation problems 1/77 Seven parents agree to do program visit and evaluation 2/77 Discuss URRD program helping kids with homework	MOSES LAKE: 2/77 See demonstration of DISTAR curriculum, discuss. Discuss URRD and Title 7 evaluations of program. 4/77 Parents work with kids using same materials teachers do 5/77 Discuss obtaining TV for classroom	TEXAS (at Grulla): 1/77 Discuss coordination with school district and OEO. 6/77 (at Basin City): Request center open at 4:00 a.m. instead of at 4:30. Agreed. 3/77 Discuss program evaluation by 20 parents (individual evaluations based on visitations)

CONCLUSION: Project goal: Parents and community members of advisory groups will be active in program decisions involving (a) organizational matters (voting for officers, meeting time, parent group activities, etc.), (b) review of proposals, (c) personnel actions, (d) use of parent funds, (e) discussion of educational program and evaluations of progress.

The summary of business conducted at parent meetings outlined in Table 2 indicates that this goal was met at all sites.

GOAL 3.3. PARENTS PARTICIPATE IN PROGRAM EVALUATION

THE NEED: In order for the program to remain responsive to the needs of the families it serves parents need to have information about the program and provide feedback evaluation and suggestions to program staff.

THE INVOLVEMENT PROCESS: Parents are involved two ways in program evaluation. The published evaluations are sent to the chairmen of each parent group and these are sometimes discussed at parent meetings.

During the year at each site a committee of parents is appointed or volunteers to visit the program and receive an on-site report on progress, observe operations, and after this each parent completes a written evaluation of the different curriculum areas being taught, making suggestions for change or giving approval. At Grulla this evaluation plan involved 20 parents. A team of experienced teachers made home visits to talk about the program and to invite parents individually to visit the program. During their visit the same team of teachers explained the program and involved them in the activities of their child or children. At the end of a half-day visit (sometimes longer) the parent filled out the written evaluation form. Some parents who do not feel comfortable writing their comments gave oral evaluations on the different points to the teachers who wrote these comments for them on the evaluation form.

This method of soliciting parent evaluation was developed so that the parents would have specific information about the

program in order to evaluate it. It was felt that in this way more specific suggestions would be made on all aspects of the program thanwould be obtained by asking for evaluation comments at a general parent meeting.

THE RESULTS: The evaluator received written parent evaluations from parents at all sites. Most offered consistent approval of all aspects of the program. Some recommendations were made where the centers were operating in poor conditions (crowding and noise). Parents requested some additions to the program: help with homework for children at Connell where parents working swing shifts in processing plants have difficulty supervising homework. Also approved was the addition of reading instruction in Spanish. Parent group chairmen gave written approval of the published project evaluations they received.

CONCLUSION: Project goal: Three or more parents at each site will review program operations annually, and their evaluation and suggestions on program be given to project staff.

The findings reported above indicate this goal was met.

PARENT AND COMMUNITY INVOLVEMENT COMPONENT

PROCESS OBJECTIVE 3.4. STAFF REPORTS TO PARENT/COMMUNITY GROUPS

GOAL 3.4: Project staff will provide parent/community advisory groups with the information needed to participate in program decisions by attending and making reports to the boards at monthly meetings, and by submission of project proposals and evaluation reports for parent/community support.

ACHIEVEMENT CRITERIA: If one or more staff members is reported as attending every parent/community advisory board meeting, and if reports have been made by these staff members on various aspects of program operation (at least one per site); if covering letters document transmission of proposal outlines and evaluations; and if the summary of outreach contact represents a substantial contact effort in the judgment of the evaluator, the objective will be considered to have been met.

PROGRESS REPORT: Minutes of parent meetings indicate that staff members attended each one, and there are frequent references to reports made about the program operations. Covering letters document transmission of evaluations as well as letters of acknowledgment from parent group officers. In the judgment of the evaluator, there was a substantial effort made at every site to involve both parents and community participation in the project operation and management. The goal is considered met.

MATERIALS DEVELOPMENT COMPONENT

GOAL 4.1: The project will publish teacher training units geared to Spanish DISTAR (oral language) each unit containing (a) a training guide with discussion questions, (b) a guide for trainers to possible answers to discussion questions, (c) observation instrument, (d) checklist with criteria for satisfactory completion of unit.

FINDINGS: Two training units were developed, field tested, revised, and published. Each contains all the necessary elements enumerated above. This goal is considered met.

GOAL 4.2: The project will develop and publish achievement tests geared to DISTAR Language 1, 1976 edition, in Spanish; and for Book 3 of Sets and Numbers; and for Books 8-21 of Sullivan Reading.

FINDINGS: The achievement test in Spanish for DISTAR language was developed and published so this goal is considered met.

The achievement test for Book 3 of Sets and Numbers was deferred because of other urgent materials development needs. It is partially completed, so this goal is considered partially met.

The achievement test for Books 8-21 was not developed. The project decided that the achievement test in reading for the Primer through Book 7 was unsatisfactory and needed revision reducing the total number of items, and the number of items repeated within levels. The revision and extension of the reading test was therefore scheduled for completion during the 1977-78 program year. This goal was not met.

GOAL 4.3: The project manager and evaluator or other staff assigned by the educational director, will develop two or more publications for dissemination of project processes and results to be made available to other educational agencies.

FINDINGS: The evaluator developed a three-page highlight of project accomplishments and needs relative to changes in administrative policy for migrant education programs based on project experience. This was presented to congressional delegations, to the NEA migrant division, to the American Educational Research Association, and several other agencies who determine policy or testify at hearings related to policy governing migrant education funding.

The project manager developed a presentation together with the educational director which was presented at the meeting of the Educational Commission of the States meeting in Brownsville,

Texas. This meeting was concerned with the special need of migrant children for interstate programming.

The 1976 final evaluation publication was submitted for review to the evaluation section of the American Educational Research Association where it received a national award for "most communicative evaluation report" published by a public school agency. The evaluation received circulation to many public school agencies in the process of this review and by requests which followed publication of the national award notices.

Additional project publications were submitted to ERIC and are available to public agencies through the ERIC system. New ERIC numbers for publications are as follows:

> The award winning Final Evaluation of Progress for 1976 is ED133133.
>
> An earlier evaluation made to the Office of Child Development is published as ED134374.

In summary the project has been active in publishing and making presentations relative to migrant education needs and project accomplishments, and this goal is considered met.

MANAGEMENT COMPONENT

GOAL 5.1: THE PROGRAM WILL FOLLOW CHILDREN AS THEY MOVE.

THE NEED: In the project's mobile component children from La Grulla, Texas travel with their families to work locations in the north every year. When the families move north they scatter to many different places instead of migrating in a large block to just one northern area. Some families sign contracts with growers during the winter and their moves are predictable in advance. Others go "free wheeling," meaning that they do not have a contract before leaving Texas but travel to a work area and stay or leave depending on work conditions they find there. The moves of families "free wheeling" are subject to change on very short notice if there are rumors of housing shortage, poor crops, labor unrest, etc.

In the past efforts to follow children who move with the crops have had a very small percentage of success (the most successful rate of follow-up reported was 19%). This is because the other programs did not have the flexibility to follow small numbers of children to isolated locations, and to adjust to changes in travel patterns arranged on short notice. The mobile component of this project was designed so that if necessary it can follow children with a single teacher, thereby giving flexibility to go where the children go.

THE APPROACH USED: Teachers are trained in all subject areas instead of specializing, and are also trained across different

age ranges so that if a teacher goes to an isolated area he/she will be able to teach the children at that location across the range of curriculum materials, preschool into school-age. Each curriculum adopted by the program was selected because it allows individualization to the maximum extent possible so that children can work at their own placement in the materials, at their own speed, with the teacher rotating attention from one to another.

Intensive initial training (during the home base period) enables teachers to migrate to areas where they will receive only intermittent supervision and professional support. The project monitoring system, involving mailed weekly reports on the progress of each child in each subject area of the presequenced curriculum materials, permits monitoring of child progress without on-site superivision. Progress problems can be attended to by the project training staff on intermittent visits to the teachers during the mobile phase. The periodic testing of child progress using the mastery tests developed for each subject area, gives a check on true progress if this should differ from reported progress through curriculum materials. This testing also points out concept areas children are missing indicating a teacher may need help in knowing how to present certain lessons. This feedback enables the periodic visits to be used much more effectively than if the trainer simply had to pick up on problems based on the sample of teaching interaction that could be observed during a visit.

The site coordinator maintains contact with families during their moves. The "grapevine" provides incredibly swift and

accurate information on moves made by families and enables the project to relocate them after a move. The trainer or educational coordinator makes contacts with schools in which children enroll and arranges released time schedules for children we are following. Some teachers commute from one school (or preschool center) to another school working with two or more groups in different places during the day. Sometimes a teacher will work with a preschool group during the day and will serve a school-age group on an after-school basis at the farm labor camp in the late afternoon or early evening.

For morale purposes the project transports children to a central location to enable at least two teachers to work together whenever possible. Since nearly all adults in migrant families work during the seasonal migration, it is also necessary to hire staff to extend the hours of the educational program to provide a day care service during the season. (Note under the review of minutes the request by parents at Basin City for the center to receive children at 4:00 a.m. instead of 4:30 a.m. which we had been doing. The practice in asparagus harvest is to get to the fields in the predawn hours.) Probably because our teaching staff are themselves migrants these hours and working conditions are accepted and the project has the flexibility it needs to provide a continuing service to the migrant families.

THE RESULTS: The achievement criteria set for this goal was that for every teacher who relocated north, at least five children (on the average) would be provided continuing service. During

the 1976 migration, 11 teachers relocated to the north, where they provided continuing educational programs for 57 children. These teachers served an additional nine children in just the northern locations, who did not return to Texas for the winter. As this averages over five children per teacher it meets the project goal.

CONCLUSION: Project goal: Each teacher who relocates north in the mobile component will provide continuing educational services to at least five children (on the average) who were enrolled in the Texas home base program.

The findings reported above indicate this goal was met.

GOAL 5.2. COORDINATION WITH OTHER AGENCIES IN HOST COMMUNITIES

THE NEED: The migrant school-age child, wherever he may temporarily locate, is the responsibility of the local public school. This program assists the child to enroll in the public school and then arranges, if possible, a released time schedule to allow the mobile teachers to continue to work with the child on a supplementary basis. This is not a program to segregate migrant children or supplant local service--only to provide a supplemental program during the child's migration which will enable him to have some continuity in his educational experience. Only for preschool children, or during the summer for school-age children if there is no local summer school, does this program become the sole provider of educational services.

In order to work with the local educational agencies project staff must initiate coordinative contact in host communities, which is the purpose of this project goal.

THE APPROACH TO COORDINATION: Coordination is handled by the administrative or training staff. Whenever possible contact is made with a school district in a receiving state before the La Grulla children actually arrive. This enables a school district to place all La Grulla children in one school in some cases, which makes it easier to get the children together for group classes.

Project staff explains to local district personnel the purpose of the continuity. The local agency is then usually asked to provide space in the school and released time for the

children to work with the mobile teachers in the bilingual curriculum.

If a local agency provides a day care service for pre-school children, our children enroll in the local program. Our mobile teachers are assigned to work under the supervision of the local agency except for a period of the day which we request they be allowed to provide bilingual instruction to the children we are following. Additional time for them to work with our training staff is also reserved.

RESULTS: Coordination with all the public schools at all sites, year-round and temporary sites for the mobile program, was achieved during the 1976 migration. The public schools offered space and other facilities for operation of the program at Moses Lake, and North Franklin Schools in Washington and in Grulla, Texas (the permanent sites), as well as at Lynden, Prosser, Mabton, and Pasco (temporary sites). We coordinated the program with Northwest Rural Opportunities where we operated in their preschool facilities at the Prosser short-term center, and at the Walla Walla Migrant Center. We worked with the Educational Institute for Rural Families at other short-term centers in Washington State, particularly Basin City. At Basin City our children were in the majority so we administered the total program and EIRF referred other migrant children who were served at this center as well as the children we followed from Texas.

CONCLUSION: Project goal: The project manager, educational director, site coordinator, resource trainers, or evaluator, will coordinate services with educational agencies in each host community.

The findings presented above indicate that this objective was met.

GOAL 5.3. THE PROJECT WILL UTILIZE MULTIPLE FUNDING SOURCES.

THE NEED: Bilingual education funds, which provide the cornerstone grant for this program, are used to pay for the training staff and bilingual curriculum supplies, materials development costs, some supplementary classroom personnel and the administration and evaluation to go with it, just as in other bilingual programs. Other locally based bilingual programs cover the basic classroom costs of teachers' salaries, space costs, consumable supplies, transportation, food if it is served, from local sources. Because this program is a supplemental program serving children who move through a series of educational districts within a year, it has no tax base and grant funds have had to be found to fund the basic costs above described.

Funding is complicated by the interstate nature of the program. This is because most state or federal money is channeled through states and is restricted to expenditure within the state which granted the funds. The project has therefore had to write proposals and obtain operating funds from several different sources in order to carry out the basic program design.

THE APPROACH: The project has had to identify funding sources in both Texas and in Washington State, identify needs in keeping with their funding guidelines, prepare proposals for grants, and subsequently evaluation for several different funding agencies.

THE RESULTS: The cornerstone grant is from Title VII, Bilingual Education, Office of Education.

Other sources of support obtained by project administrative staff efforts:

Urban, Rural, Racial, Disadvantaged (URRD) grand, Washington State funds, Office of Public Instruction.

Head Start matching grant, Washington State funds.

Title XX Social Security grant, federal and state matching funds, administered by the Washington State Department of Social and Health Services.

Title I-Migrant, Office of Education ESEA grant through Washington State, for a facility at the Basin City temporary site, and a facility at the Connell year-round site.

Department of Agriculture, USDA food program.

Office of Child Development, Migrant and Indian Division Head Start funds, administered by the Texas Migrant Council.

A technical assistance grant from the Washington State Office of Public Instruction, Title VII office.

Title VI-B Handicapped, ESEA federal funds administered through the Washington Office of the State Superintendent of Public Instruction.

CONCLUSION: Project goal: The project manager and evaluator will prepare proposals and related evaluations as necessary to obtain basic support costs for the program, preschool through school age, in all operating sites, as necessary to supplement the bilingual grant and to carry out the full operational design commitment of the bilingual grant. This will be

documented by grant award documents from other funding sources, bookkeeping and audit records.

The summary of grant sources identified above has provided funding sufficient to operate the program according to the basic design at all sites. The project was, in fact, identified by a national consulting agency as an exemplary case study of effective use of multiple funding. The goal is considered to be met.

GOAL 5.4. CHANGE ADMINISTRATIVE GUIDELINES CURRENTLY RESTRICTING INTERSTATE PROGRAMS FOR MIGRANT CHILDREN.

THE NEED: Migrant children are a temporary population everywhere they move, including the home base community where they may not stay more than three to five months. Because of this, there has been a long running dispute as to who should pay for programs necessary to educate them. This applies particularly to the extra costs such as textbooks used for only a few weeks or months, hiring temporary extra personnel, etc.

The northern schools tend to think of migrant children as "belonging" to the home base states like Florida or Texas. The home base states point out that the actual number of months the child is at "home" is less than the time he spends in the north, and that the parents earn--and spend--most of the money they make in the northern states. Northern schools who do make special efforts on behalf of migrant children have then sometimes lost essential levies if their expenditures on behalf of this "temporary burden" are deemed excessive by the local taxpayers.

Given this type of situation it is probable that the responsibility for the education of migrant children (like that of Indian children) will fall primarily on the federal government. The effort of this program to assure the means of its continuation, therefore, has been directed to federal funding sources which could provide this type of program on a much larger scale to migrant children. The main source of such funding for migrant children is ESEA Title I-Migrant, which has a funding level of approximately 145 million dollars

for education of migrant children. Administrative guidelines for use of Title I-Migrant money at present, however, channel all of the money to states which in turn channel it to local agencies for local programs. A local or state migrant agency is not precluded from funding an interstate program that would cross state lines, but almost none have been funded. Some states have paid for teacher exchanges sending teachers to other states usually as consultants. Several have sent local personnel to visit other states to get ideas about their services to migrant children. Most of the interstate cooperation is nothing more than sending personnel to meetings to exchange ideas. No other direct service program to children such as the mobile component of this project is currently funded. Many people convinced of the value of this type of program have urged that some Title I-Migrant money be retained at the federal level for funding of experimental programs of which this interstate effort would be one example. At present the guidelines set by Congress for the expenditure of migrant education money precludes this possibility.

PROGRAM APPROACH: This program was designed to be responsive to a basic educational problem of children who move--the discontinuities in their educational experience. No program operating at a single site can be responsive to this particular problem.

Particular care has been taken to document this effort and its effectiveness with the children served. The purpose in so doing was to provide a convincing model of a valuable program

for migrant children. The fact that the program effectively uses migrant adults as the teachers of the children has made the program also a model of how to provide continuing education and opportunity for migrant families. From the beginning the program has been aimed at changing administrative guidelines for various funding sources to facilitate interstate programming for migrant children.

THE RESULTS: During the current program year the project undertook five major efforts aimed at achieving this goal--one of them successful, the others of uncertain outcome.

Project staff prepared materials for and contacted several Congressional representatives involved in oversight of migrant education funds. These contacts included legal counsel. The purpose was to see what approach could be used to secure reservation of some funds at the federal level for use in interstate programs. This effort was rated "uncertain outcome." The situation seemed to be that Congressman Meeds and Congressman Ford, both active on behalf of migrant education in former years, had been given new committee assignments. The new chairman of the subcommittee involved with migrant education was just beginning to undertake to familiarize himself with migrant education needs. The legal counsel for the committee felt that this particular concern might be rather far down the list of problems to be worked out in drafting continuing legislation for continuation of ESEA Title I and Title I-Migrant programs.

Project staff provided information about the need for interstate funding to the NEA migrant project director, Roy Fuentes who provided enthusiastic endorsement of the program and the need for interstate funding. At his invitation staff members attended a number of meetings--in Washington State, in Texas, and in Washington, D.C.--where the message was given a little wider circulation. This, too, is rated as uncertain outcome as no actions have come about other than discussion from this support for our program and concerns by the NEA.

The project manager and educational director received contacts from the Educational Commission of the States task force concerned with educational problems of migrants, particularly the need for interstate cooperation and programming. The project manager and evaluator attended meetings in Washington State at the invitation of the task force and presented information about the problems this program addresses and the effectiveness of our approach to these problems. The task force paid the way of the project manager and educational director to attend a meeting they held in Brownsville, Texas for further discussion of the issue. This, too, is rated as questionable outcome. To the extent that these commissions and task forces affect decision makers in education their understanding of migrant education problems and the possibilities of interstate programming may have a future yield. No particular action is now evident as a result of this effort.

The project drafted proposals to Title I migrant offices in Texas and in Washington State for a cooperative interstate program modeled after this one entitled the "Interstate Mini Corps." It would recruit and utilize migrant adults as teaching staff. It would provide somewhat more extensive opportunities for continued academic training than this program has been able to give, with the same emphasis on in-service training. It would use the curriculum model developed by this program. Initial response to this application in Texas was very favorable--the project design was declared one of the best they had ever reviewed. It was not, however, funded on the basis that the interstate programming was not included in the state plan and therefore the program did not fit funding guidelines. The Washington State application was simply set aside since the two proposals were linked in the project design. The project will direct its efforts in the coming year to (1) getting into the state design approval of interstate programming in Texas and (2) getting the proposal reviewed again. The outcome of this effort at this time is on "hold."

The fifth, and successful, effort made to bring attention to this program and its possibilities for service to migrant children was an application for funding as a developer/demonstrator program under the National Diffusion Network. Previously the program's well documented proof of educational effectiveness had earned it approval of the Joint Dissemination Review Panel. As a JDRP approved program it was eligible

to apply for Developer/Demonstrator status. The program was funded and is now part of the Office of Education's diffusion effort. A second achievement of this effort was its further selection as one of 21 programs (out of the near 200 JDRP approved programs) to be featured at a series of national NDN Awareness Conferences scheduled in Washington, D.C., Denver, Dallas, Atlanta, and San Francisco. Some 1,300 school districts are being invited to these conferences to examine the models presented there for possible adoption. This project is offering four components for adoption: its language, math, reading, and preschool academic readiness components. With each curriculum area comes the project training methods and monitoring. This is most likely to result in adoption of the year-round program model for local sites since this is the type of program that fits most school district capabilities. It will give much exposure to the program, however, and may also lead to increased interest in the need for interstate programming.

CONCLUSION: Project goal: The project evaluator will prepare one or more sets of materials (narrative plus audiovisual graphic presentation) on the outcomes being achieved by this project for presentation by the educational director to members of Congress who must appropriate funds for the educational needs of migrant children, and to policy makers controlling expenditure of existing sources of funds. This effort is directed to making possible in the future a continuation of interstate bilingual programs needed by interstate migrant children.

The project evaluator prepared materials and project staff made many presentations to members of Congress and a whole series of other educational agencies and policy makers involved in migrant education. The level of effort expended demonstrates project commitment to dissemination. The purpose of this effort is to extend the benefits beyond the migrant children and adults directly receiving services, to make possible similar efforts for migrant children in other places. The goal is considered to have been partially met.

TECHNICAL APPENDIX A

The main body of the final report was written for the general reader, and for clarity avoided technical detail. Since information on procedures for testing and data collection and explanatory footnotes for the analysis of test scores in the instructional component is of importance to a technical reader, that information has been reported here.

TESTING AND DATA COLLECTION AND ANALYSIS PROCEDURES

Training of Testing Personnel

Independent testers are used at each site--e.g., instructional or supervisory staff do not do testing. All testers are paraprofessional bilingual Mexican-Americans. Since more than 95% of the children served are Mexican-American, this testing staff has cultural identity for the overwhelming majority of children being tested.

Each tester is individually trained on each instrument and must demonstrate appropriate procedures in the testing of at least two children, under observation, as part of the training. Subsequent monitoring visits review testing procedures annually. Training and monitoring of testers is done by the evaluator and/or the resource trainer. Experienced testers are also used to assist in training new testers.

Testing Schedule

All children are pretested before attending the program for 30 days--in practice as soon as possible after their initial enrollment. This pretesting includes all of the instruments used in the evaluation appropriate to children of their age. It also includes the project achievement tests which are used to help determine initial placement of children in project materials. Since new children can and do enroll in the program every month during the year, pretests are also given during every month throughout the year.

Repeat testing on standardized test instruments is done after an individual child has attended for a period of 100 days, i.e., he is tested at 100, 200, 300, etc., days. Attendance data are kept individually for each child and at the end of each month a list is made of every child who that month passed a testing interval in his attendance. This list is forwarded to the tester at each site who then administers the appropriate tests for that child. Every month some children at each center reach a testing point in their program attendance, so posttests are also given during every month throughout the year.

This testing schedule is more complicated than the usual evaluation procedure of doing mass testing at two calendar points. It was devised because of the unique requirements of evaluating a migrant population who have spotty attendance and who come and go at different times during the year. When the Texas Education Agency reports on child progress between tests administered in October and other tests administered in April of the school year it is not uncommon to have both pre- and posttests on less than 50% of the children enrolled in the program. Some children are there for pretests but leave before posttests are given. Other children came too late for pretests but are there at the post-testing dates. Some children enter late and leave early and aren't there for either testing point. This is a very common pattern in the evaluation of migrant programs--test information presented that represents a very unsatisfactory percentage of the project group it is meant to evalute.

Another problem encountered in use of calendar date testing with a migrant population results from their uneven attendance patterns. Of two children tested on the same date in April, it would not be at all uncommon for one to have attended 50 days total prior to that testing point, another child have attended 90 days. This puts the evaluator in the position of comparing child progress between tests which represents two very different amounts of exposure to the program being evaluated.

By testing based on individual attendance records, each of the posttests used in this evaluation represent a known amount of project intervention. At evaluation points the accumulated tests are then subgrouped by age and the period of attendance at the time of testing for purposes of analysis.

Analysis Procedures

The project norm group is used as a measure of the probable achievement level of project children without benefit of the program. When a child enrolls in the program he is pretested. If the pretest was given before the child had attended the program for as long as 30 days, it is put into the project norm group for children at that age level. The project has an enrollment policy which permits children to start the program at different ages, e.g., some start when they are three, others when they are four, others at five, or six. By accumulating pretests the project has been able to develop its norm group for all ages on all tests. The size of the norm group is increasing constantly as new pretests are accumulated.

In the past all evaluations have used a norm group obtained as described in the previous paragraph. This year the norm group for the Peabody Picture Vocabulary Test and for Wide Range Achievement Test was expanded to include the tests of children from a neighboring town to La Grulla, Texas. These children had been tested for the past three years to provide a comparison group of

mobile migrant children to compare to the children in just our mobile component using the two tests mentioned, the PPVT and WRAT. The reason for testing a comparison group instead of just using the project norm group for this special study (see instructional objective eight) is that the project norm group includes pretest scores on some children from permanent sites who do not migrate. In the special study we wanted to hold the factor of migration constant: only project children who migrated were tested, only comparison group children who migrated were tested.

The community where comparison group tests were given and La Grulla have about the same socioeconomic level--most families earn their yearly income from the migration period doing seasonal farm work. Both communities are Spanish dominant, located on the Rio Grande River where television stations beam in Spanish language programs, many radio stations are in Spanish, the usual language of casual conversation in town or school would be Spanish. As a further check on the comparability of the two population groups, statistical analysis was done for two years in a row comparing the mean test scores by grade level of the comparison group and the pretest scores of children at the same level in the project norm group. No significant differences were found. This was interpreted to mean that the children from the neighboring town were, in fact, the same population group as project children and their scores are like those of children pretested for this program.

Most pretest scores for children in this project were at lower age levels (three, four, five) since the project attempts to get children started as young as possible. Therefore, the addition of scores from the comparison group to the project norm group enlarged the size of the norm group at the school age level where it has been the smallest. Having a larger norm group at these upper ages allows greater stability for statistical analysis.

The project evaluation design calls for comparison of the mean scores of project children posttested after 100 or 200 days to children in the project norm group of the same age. A t-test of statistical significance is run between the project posttest attendance groups and the project norm group of the same age. Statistical analysis is only done when subgroups to be compared have a minimum size of ten, with the exception of the special study reported in objective eight.

For this evaluation all test data were put onto computer cards and the t-test analysis was done using the SPSS computer package. The readout using this computer analysis gives the t-value using separate or pooled variances. If a significant difference existed in the two variances the separate variance t was reported; if the two variances were not significantly different the pooled variance t was reported in the tables of detailed project findings which follows in this technical appendix.

Most objectives are based on comparison of the children with over 200 days attendance and the project norm group. Because it is difficult for a child to accumulate 200 days of attendance all

at the same age level, there is almost complete independence of the two groups used in the analysis. Children with 200 days at age four will more than likely have started the program at age three, for example. They will be compared to the pretest scores of other project children who started the program at age four.

A very small percentage of the children may have both pretest and posttest scores at the same age level. Analysis was therefore done including and excluding this small overlap group. The conclusion was that any bias created by this lack of complete independence of groups acted against the project in reducing the likelihood of a finding of significance.

The project objectives are stated on the basis of expecting superiority by the project group. Since directionality is given, it would be appropriate to apply a one-tailed level of significance to project findings. The significance level reported in the SPSS t-test analysis is two-tailed. In over 100 t-test comparisons run on project data there was only one in which the finding of significance depended on whether one-tailed or two-tailed significance was used. For convenience, therefore, the tables of data which follow report two-tailed significance levels.

To maintain a high level of accuracy in handling of test data the following precautions are taken. Each tester scores tests she administers. All tests are checked and rescored upon receipt. After preparation of the computer cards a readout is obtained and two persons recheck the accuracy before the decks are used. After analysis has been done, the N's of subgroups are rechecked against the project data entry records. The project has employed an independent evaluation specialist who has reexamined all analysis procedures and validated claims.

STATISTICAL DETAIL OF TEST ANALYSIS FOR INSTRUCTIONAL COMPONENT

1.1 GOAL: Project children age 3.0-5.5 will demonstrate a superiority over norm group children of the same age that is statistically significant at the .05 level after 100 or more days attendance, on preschool concepts as measured by the Cooperative Preschool Inventory.

Long Range Results: For this analysis tests were used cumulative through April, 1977.

TABLE 3. Cooperative Preschool Inventory Test Scores Cumulative Analysis

Age Group	3.0-3.11	4.0-4.11	5.0-5.55
Norm Group			
Number	157	104	29
Mean raw score	19.573	29.596	37.759
Standard deviation	8.030	10.437	8.947
100 Days Attendance			
Number	62	110	34
Mean raw score	24.468	34.900	42.677
Standard deviation	7. 9	8.093	10.923
T-value	4.12	4.14 sv*	1.93
Degrees freedom	217	194.12	61
Significance level	.0005	.0005	.058
200 Days Attendance			
Number	13	126	91
Mean raw score	30.077	39.619	46.484
Standard deviation	6.291	9.148	7.470
T-value	4.60	7.76	5.21
Degrees freedom	168	228	118
Significance level	.0005	.0005	.0005

sv = t-value calculated on separate variances. Unless reported the t-value was calculated on pooled variance. T-tests are between the project attendance groups and the norm group.

TABLE 4. Cooperative Preschool Inventory Test Scores Percentile Rank Based on National Norms*

Age Group	3.0-3.11	4.0-4.11	5.0-5.55
Norm Group	34 %ile	35 %ile	48 %ile
100 Days Attendance	58 %ile	54 %ile	66 %ile
200 Days Attendance	69 %ile	70 %ile	75 %ile

*Based on mean raw scores in cumulative analysis.

Current Year Results: Posttests in the analysis on Table 5 report scores for just the past 12 months up through April, 1977. The norm group scores are for several years cumulative through April 1977.

TABLE 5. Cooperative Preschool Inventory Test Scores
Current Year Analysis

Age Group	3.0-3.11	4.0-4.11	5.0-5.5
Norm Group			
Number	157	104	29
Mean raw score	19.573	29.596	37.759
Standard deviation	8.030	10.437	8.947
100 Days Attendance			
Number	21	34	9*
Mean raw score	23.238	32.824	
Standard deviation	5.300	7.914	
T-value	2.77 sv	1.65	
Degrees freedom	33.76	136	
Significance level	.009	.101	
200 Days Attendance			
Number	0	35	32
Mean raw score		39.800	46.469
Standard deviation		7.985	7.907
T-value		5.28	4.04
Degrees freedom		137	59
Significance level		.0005	.0005

*Statistical analysis limited to subgroups of 10 or more.

sv = separate variance. All others are pooled variance.

HANDWRITING SKILLS

1.2 GOAL: Project children ages three to five, who have attended the program 100 or more days, will demonstrate a superiority over the project norm group of the same age which is statistically significant at the .05 level based on the spelling subtest of the Wide Range Achievement Test.

Long Range Results: For this analysis all tests were used cumulative through April, 1977.

NOTE: The spelling subtest of the Wide Range Achievement Test, despite its title, is a test of visual-motor coordination at the preschool level. The child is asked to copy 18 marks of increasing difficulty and to write two letters of his name. It is therefore an appropriate test at this age level to measure the effectiveness of a handwriting curriculum.

TABLE 6. Wide Range Achievement Test, Spelling Subtest Cumulative Analysis

Age Group	3.0-3.11	4.0-4.11	5.0-5.11
Norm Group			
Number	133	107	86
Mean raw score	0.850	2.869	7.256
Standard deviation	1.294	2.937	4.428
100 Days Attendance			
Number	60	115	78
Mean raw score	2.650	6.052	11.000
Standard deviation	1.964	4.006	5.094
T-value	6.49 sv	6.78 sv	5.03
Degrees freedom	82.94	208.80	162
Significance level	.0005	.0005	.0005
200 Days Attendance			
Number	8*	94	118
Mean raw score		9.245	15.220
Standard deviation		4.998	4.213
T-value		10.83 sv	13.05
Degrees freedom		146.17	202
Significance level		.0005	.0005

*Analysis is only done for groups of 10 or more.

sv = separate variance formula used for t-test. All others are pooled variance.

TABLE 7. Wide Range Achievement Test, Spelling Subtest Grade Equivalent Scores, Standard Scores, and National Percentiles Based on National Norms

Age Group	3.0-3.11	4.0-4.11	5.0-5.11
Norm Group			
Grade equivalent score	N-5	Pk-1	P-7
Standard score			71-73
National percentile			3rd to 4th
100 Days Attendance			
Grade equivalent score	Pk-1	P-5	K-3
Standard score			86-89
National percentile			18th to 23rd
200 Days Attendance			
Grade equivalent score	P-3	K-1	K-7
Standard score			96-100
National percentile			39th to 50th

Standard scores and national percentiles are only available for children ages 5.0 and over. The norms are published for children 5.0-5.5 and for children 5.6-5.11. Since the project analysis groups all five year olds together, the scores for both are reported as a range. This analysis is based on tests cumulative through April, 1977.

Current Year Results: In Table 8 the norm group tests are all pretests cumulative through April, 1977. Posttests are just those given for the 12-month period ending April, 1977.

Table 8. Wide Range Achievement Test, Spelling Subtest
Current Year Analysis

Age Group	3.0-3.11	4.0-4.11	5.0-5.11
Norm Group			
Number	133	107	86
Mean raw score	0.850	2.869	7.256
Standard deviation	1.294	2.937	4.428
100 Days Attendance			
Number	23	34	20
Mean raw score	2.174	4.559	9.200
Standard deviation	1.800	2.025	4.572
T-value	3.38 sv	2.93	1.76
Degrees freedom	26.07	139	104
Significance level	.002	.004	.082
200 Days Attendance			
Number		36	53
Mean raw score		10.028	15.226
Standard deviation		5.353	3.841
T-value		7.65 sv	10.83
Degrees freedom		42.30	137
Significance level		.0005	.0005

GAINS IN SPANISH

1.3 GOAL: After 200 or more days attendance project children for whom Spanish is the primary language will show superiority over children in the project norm group of comparable age and language classification, which is statistically significant at the .05 level, as measured by the Peabody Picture Vocabulary Test, Form B in Spanish.

TABLE 9. Peabody Picture Vocabulary Test, Form B, in Spanish

For all tests cumulative through April, 1977

Age Group	3.9-4.2	4.3-4.8	5.9-5.5	5.6-6.5
Norm Group				
Number	72	54	66	73
Mean raw score	24.806	27.019	33.955	40.697
Standard deviation	9.424	8.201	9.206	9.171
200+ Days Attendance				
Number	27	54	116	102
Mean raw score	30.593	34.537	38.293	43.980
Standard deviation	7.727	6.987	8.695	7.577
T-value	2.85	5.13	3.17	2.59
Degrees freedom	97	106	180	173
Significance level	.005	.0005	.002	.011

Posttests for current year: 5/76-4/77

200+ Days Attendance				
Number	5	9	33	26
Mean raw score			38.545	43.654
Standard deviation			9.247	9.645
T-value			2.34	1.39
Degrees freedom			97	97
Significance level			.022	.167

T-values for 200+ day attendance groups, both current and cumulative, relate to the project norm group.

Analysis was done only for groups with 10 or more cases.

As the Spanish language curriculum is only used up to first grade, the analysis is cut off at age 6.5. The age groupings used correspond to those used in standardization of this test. There are, however, no national norms based on a Spanish speaking population.

The project evaluation plan indicated that the Carrow Test of Auditory Comprehension of Languages, in Spanish, which was just being introduced into project use would receive some evaluation, although no criterion goal was established relative to use of this test.

The test was originally selected because it would give more information on the child's knowledge of structure of the language than was being obtained from the Peabody Picture Vocabulary Test. After approximately six months of use, however, the test was phased out because it presented too many testing difficulties. The test is not organized in ascending order of difficulty so that it can be discontinued after some difficulty level has been reached, indicated by consecutive misses. Instead, all items must be given to every child and there are over 100 on the test. Children the age of those served in our project missed so many items that they became restless and unhappy in the test situation long before all items had been tested. We felt this reduced test validity. The test would no doubt be quite useful with an older age group. We felt it was not a useful test for our age range. For this reason no analysis of test results from this test is being presented.

GAINS IN BILINGUAL CAPABILITY

1.4 GOAL: After 200 days program attendance 50% or more of project children will be classified functionally "bilingual" based on their comparative scores in Spanish and English on the Peabody Picture Vocabulary Test.

Target Group: All project children. Although the majority of project children are Spanish dominant when they enter the program, this objective also applies to those who enter as English dominant, as bilingual instruction is given all children.

TABLE 10. Percentage of Children Classified Bilingual After 200 Days Program Attendance

	Ratio Classified Bilingual	Percentage Classified Bilingual
All tests cumulative through 6/77	39/74	53%
Current year tests 5/76 through 6/77	18/27	67%

TABLE 11. Percentage of Children Classified Bilingual After Differing Periods of Project Attendance*

Attendance Period	Ratio Classified Bilingual	Percentage Classified Bilingual
Norm group	34/148	23%
100 days	65/145	45%
200 days	39/74	53%
300+ days	30/43	70%

*Test scores cumulative through April, 1977.

As an additional analysis of test scores related to this goal, a comparison was made of both Spanish and English scores of children in the project norm group, and for project children with 200+ days attendance. The detailed data for this analysis are shown in Table 12.

TABLE 12. Scores in Spanish and in English on Peabody Picture Vocabulary Test by Age and Attendance

	Spanish Scores		English Scores	
	Norm Group	200+ Attend.	Norm Group	200+ Attend.
Age 3.9-4.2				
Number	72	27	72	27
Mean raw score	24.806	30.593	8.014	15.778
Standard dev.	9.424	7.727	5.322	10.956
T-value		2.85		3.53 sv
Significance		0.005		0.001
Age 4.3-4.8				
Number	54	54	54	54
Mean raw score	27.019	34.537	10.222	18.111
Standard dev.	8.201	6.987	7.166	9.870
T-value		5.13		4.75
Significance		0.0005		0.0005
Age 4.9-5.5				
Number	66	116	66	116
Mean raw score	33.955	38.293	12.046	24.491
Standard dev.	9.206	8.695	9.948	13.786
T-value		3.17		7.03 sv
Significance		0.002		0.0005
Age 5.6-6.5				
Number	73	102	73	102
Mean raw score	42.699	43.980	13.932	34.078
Standard dev.	9.171	7.577	9.025	15.625
T-value		2.59		10.75 sv
Significance		0.011		0.0005
Age 6.6-7.5				
Number	56	55	56	55
Mean raw score	48.625	48.000	23.643	39.309
Standard dev.	10.173	8.553	14.253	14.355
T-value		-0.35		5.77
Significance		0.727		0.0005
Age 7.6-8.5				
Number	36	36	36	36
Mean raw score	53.500	53.639	28.000	48.167
Standard dev.	10.007	9.144	16.654	10.990
T-value		0.06		6.06 sv
Significance		0.951		0.0005

sv = separate variance formula. All others are pooled variance t-values.

Test scores cumulative through April, 1977.

MATH

1.05 GOAL: After 200 or more days attendance, project children will show a superiority over children the same age in the project norm group that is statistically significant at the .05 level, as measured by the math subtest of the Wide Range Achievement Test.

TABLE 13. Wide Range Achievement Test, Math Subtest

Age Group:	4.0-4.11	5.0-5.11	6.0-6.11	7.0-7.11	8.0-8.11
Norm Group					
Number	107	86	68	62	21
Mean raw score	4.804	8.558	13.706	18.581	21.905
Standard deviation	2.938	4.118	4.691	4.456	5.127
200+ Attendance					
Number	94	118	64	33	15
Mean raw score	10.426	15.348	19.672	24.091	26.867
Standard deviation	3.539	3.921	4.588	3.565	1.727
T-value	12.30	11.96	7.38	6.13	4.12 sv
Degrees freedom	199	202	130	93	25.92
Significance	.0005	.0005	.0005	.0005	.0005

(Above scores are cumulative through April, 1977)

(Scores below are for current year, May, 1976-April, 1977)

200+ Attendance					
Number	36	53	31	21	2
Mean raw score	10.333	14.208	18.806	24.191	
Standard deviation	3.538	3.613	4.771	3.842	
T-value	9.27	8.22	4.99	5.15	
Degrees freedom	141	137	97	81	
Significance	.0005	.0005	.0005	.0005	

Analysis of both cumualtive and current posttest scores related to the project norm group. Only subgroups with 10 or more cases were analyzed.

sv = calculated by separate variance formula. All other t-values were calculated based on pooled variance.

Although all project objectives are stated in terms of relationship to the project norm group, additional analysis was done for children ages 5.0 and over relating project children's scores to national norms. Table 14, which follows, shows the mean standard score, and its related percentile score for the project norm group as well as for children with 200+ days attendance.

TABLE 14. Wide Range Achievement Test, Math Subtest Standard Scores and National Percentile Rank

Age Group:	5.0-5.11	6.0-6.11	7.0-7.11	8.0-8.11
Norm Group				
Number	86	68	62	21
Mean standard score	79	88	86	85
Percentile rank	8th	21st	18th	16th
200+ Attendance				
Number	118	64	33	15
Mean standard score	106	101	100	96
Percentile rank	66th	53rd	50th	39th

READING

1.06 GOAL: After 200 or more days attendance, project children will show a superiority over children the same age in the project norm group that is statistically significant at the .05 level, as measured by the reading subtest of the Wide Range Achievement Test.

TABLE 15. Wide Range Achievement Test, Reading Subtest Analysis for Spanish Dominant Children

Age Group:	4.0-4.11	5.0-5.11	6.0-6.11	7.0-7.11	8.0-8.11
Norm Group					
Number	63	65	56	53	15
Mean raw score	7.032	9.200	14.357	22.830	26.600
Standard deviation	4.476	4.036	6.759	9.444	8.534
200+ Attendance					
Number	67	81	54	29	12
Mean raw score	10.955	17.506	23.926	38.830	45.667
Standard deviation	4.099	7.732	10.545	14.644	9.432
T-value	5.22	8.35 sv	5.64 sv	5.26 sv	5.51
Degrees freedom	128	125.47	89.74	41.05	25
Significance	.0005	.0005	.0005	.0005	.0005
(Above scores are cumulative through April, 1977)					
(Scores below are for current year only, May, 1976-April, 1977)					
200+ Attendance					
Number	27	32	24	19	4
Mean raw score	10.333	16.063	23.458	40.263	
Standard deviation	3.486	7.496	11.935	15.488	
T-value	3.41	4.84 sv	3.50 sv	4.61 sv	
Degrees freedom	88	40.08	29.53	22.98	
Significance	.001	.0005	.001	.0005	

Analysis done only for subgroups with 10 or more cases.

sv = separate variance formula used to obtain t-value. All others are calculated as pooled variance.

Both cumulative and current year 200+ attendance group means are related to the norm group mean in calculating t-values.

TABLE 16. Wide Range Achievement Test, Reading Subtest Analysis for English Dominant Children

Age Group:	4.0-4.11	5.0-5.11	(Too few for analysis at all older age groups)
Norm Group			
Number	28	13	
Mean raw score	7.964	13.154	
Standard deviation	3.786	6.026	
200+ Attendance			
Number	27	36	
Mean raw score	11.222	17.833	
Standard deviation	5.041	6.078	
T-value	2.72	2.39 sv	
Degrees freedom	53	21.45	
Significance	.009	.026	

(Above scores are cumulative through April, 1977)

(Scores below are for current year only, May, 1976-April, 1977)

200+ Attendance		
Number	21	(Too few for analysis in all other age groups)
Mean raw score	16.952	
Standard deviation	5.971	
T-value	1.80	
Degrees freedom	32	
Significance	.082	

Analysis done only for subgroups with 10 or more cases.

sv = separate variance formula used to obtain t-value. All others are calculcated as pooled variance.

Both cumulative and current year 200+ attendance group means are related to the norm group mean in calculating t-values.

Project objectives are stated in terms of relationship to the project norm group only. However, additional analysis was done using standard scores in order to relate project findings to national norms. Table 17 below shows the mean standard score for children over the age of 5.0 (norms are not available below this age) and its related percentile rank.

TABLE 17. Wide Range Achievement Test, Reading Subtest Standard Scores and National Percentile Rank

FOR SPANISH DOMINANT CHILDREN

Age Group:	5.0-5.11	6.0-6.11	7.0-7.11	8.-0-8.11
Norm Group				
Number	66	56	53	15
Mean standard score	78	80	79	76
Percentile rank	7th	9th	8th	5th
200+ Attendance				
Number	81	54	29	12
Mean standard score	97	95	96	94
Percentile rank	42nd	37th	39th	34th

FOR ENGLISH DOMINANT CHILDREN

Norm Group		
Number	13	Under 10 cases in all other
Mean standard score	89	subgroups, so analysis was
Percentile rank	23rd	not done.
200+ Attendance		
Number	36	
Mean standard score	98	
Percentile rank	45th	

CULTURAL KNOWLEDGE

1.07 GOAL: After 200 or more days attendance, project children will show a superiority over children the same age in the project norm group that is statistically significant at the .05 level, as measured by the BMHS Test of Cultural Concepts. (Project developed)

Table 18 which follows is an analysis of project children tested during May and June, 1977, only. The norm group, however, represents cumulative pretests through April, 1977.

TABLE 18. Scores of BMHS Test of Cultural Concepts

Age Group:	4.0-4.11	5.0-5.11	6.0-7.11*
Norm			
Number	39	23	11
Mean raw score	20.821	25.652	27.273
Standard deviation	5.340	5.042	6.051
200+ Attendance			
Number	11	24	22
Mean raw score	27.182	32.667	37.045
Standard deviation	3.894	3.737	3.958
T-value	3.67	5.43	5.59
Degrees freedom	48	45	31
Significance	.001	.0005	.0005

*Age groups were combined in order to have a group size sufficient for analysis in the norm group category.

A technical report on the project developed BMHS Test of Cultural Concepts is given in Appendix B.

SPECIAL STUDY: CONTINUITY GROUP WITH CONTROL GROUP

1.08 GOAL: Project children who have been enrolled in one or more northern locations in addition to enrollment in Texas, and who have attended the program for 200 days or more since November 1973, will show a superiority over control group children in math and reading as measured by the Wide Range Achievement Test, that is statistically significant beyond the .05 level.

TABLE 19. Continuity and Comparison Group Children* Compared on Wide Range Achievement Test

MATH SCORES

Grade Level	Kindergarten	First	Second	Third
Comparison Group				
Number	15	15	15	15
Mean raw score	10.200	15.933	22.733	25.600
Standard deviation	4.769	4.234	4.920	2.613
Continuity Group				
Number	8	8	10	12
Mean raw score	14.500	25.125	26.300	29.083
Standard deviation	2.976	2.100	2.406	1.240
T-value	2.31	5.73	2.41 sv	4.56 sv
Degrees freedom	21	21	21.53	20.89
Significance	.031	.0005	.025	.0005

READING SCORES

Comparison Group				
Number	15	15	15	15
Mean raw score	11.067	22.200	27.600	32.267
Standard deviation	4.200	4.459	10.829	8.388
Continuity Group				
Number	8	8	10	12
Mean raw score	12.250	28.875	47.100	50.000
Standard deviation	2.493	12.245	15.517	8.697
T-value	0.73	1.49 sv	3.71	5.37
Degrees freedom	21	8.01	23	25
Significance	0.475	0.174	0.001	0.0005

Continuity group children = project children in grades kindergarten through third grade who have been enrolled in one or more northern locations in addition to enrollment in Texas, and who have attended the program for 200 or more days.

Comparison group children = children in kindergarten through third grade from a neighboring town to La Grulla, Texas, who migrate with their families each year earning their living through seasonal farm work. A more detailed description of the comparison group children is given in the introductory section to this Technical Appendix.

sv = separate variance formula used to calculate t-value. All other t-values are calculcated using pooled variance.

APPENDIX B

TECHNICAL REPORT ON THE BILINGUAL MINI HEAD START TEST OF CULTURAL CONCEPTS

The BMHS Test of Cultural Concepts was developed in 1975-76 to meet the need of a test of knowledge related to culture that was appropriate to children age 3-8. It was the finding of the project that most cultural heritage materials are geared to the older school-age child who has the time perspective to learn about history, famous figures, and rather abstract concepts. Other tests combine knowledge questions with attitude questions requiring the selection of words or faces along a continuum of five or more steps from positive to negative. We felt the younger children in our project group would not be able to respond to this multiple choice answer and that the results would reflect their confusion leading to very poor test reliability.

Content Validity

The project therefore elected to design its own test. Six aspects of culture were selected by the educational director, in consultation with other staff, which he felt were aspects that would be meaningful to small children.

Food was one aspect chosen. Staff then identified food items which they felt were most typical of Mexico--arroz con pollo, frijoles, enchilada, taco, cabrito, etc., and food most typical of the United States--hamburger, hot dog, cherry pie, doughnuts, turkey, etc.

Clothing was another topic chosen. Staff nominated typical items of clothing from Mexico--poncho, sombrero, huaraches, etc., and from the U.S.--T-shirt, tennis shoes, blue jeans, etc.

The topic representing the highest level of abstraction chosen was that of national symbols--the flags of both countries, and the seal of the U.S. with the eagle with the arrows and the olive branch, and the Mexican eagle with the snake in its talons.

The other topics chosen were holidays and celebrations of each culture (particularly those important to young children), songs and musical games (sung by young children or those used at holidays or celebrations which they would hear); and dances (that could be danced by young children).

Most other tests examined by the project before choosing to write its own left out music and dance, which are commonly considered rather important aspects of a culture. We felt this was probably because music and dance were difficult to portray in a paper and pencil test. The project te[illegible] made a tape to be played on a cassette (singing by teachers, or music from records used for dancing) with a small sample of each song or dance. Hearing this, the children were then asked to choose between four pictures, the one that "went with" the music.

All test items required a nonverbal response--choosing from four pictures in response to the cue given by the tester. Spanish word cues were used for all items related to Mexican culture, English word cues for all items related to U.S. culture.

Field Testing

Field testing was done of the original test and some pictures changed if the children could not readily recognize the object. In other cases, a pair of pictures was tried out on children and the one most frequently chosen to represent something--e.g., the dance the "Hokey Pokey," was selected for use in the test.

Reliability Data

The final version of the test was given to 70 children in the Texas center during January 1976. The scores from this group of children were analyzed to determine the reliability of the instrument. The Kuder Richardson 20 formula for reliability based on the pattern of answers to each test item, yielded a reliability of .90. For a project made instrument, this level of reliability seemed extremely high.

Nearly every test item differentiates well by age--i.e., misses appear to represent a growth pattern rather than random choice of answer. The test appears to be best adapted to the preschool through kindergarten age group. Older children score so high on the test that there is insufficient range to measure gain for first grade and higher. The project is considering development of a second level of the test, adding items of a little higher level of difficulty for the older children and eliminating some items which children uniformly are able to answer by age five.

The project is now in the process of using the tests with different groups outside the project to get a pattern of responses related to different cultural backgrounds.

Administration Data--Time and Cost

The test contains 44 test items and requires from 5 to 10 minutes to administer. It must be given individually. The test book contains 17 plates of four items each (68 picture choices). The same plate of four pictures may be used for more than one test item, each plate containing one or more dummy choices as well as the pictures related to test questions. Testers must also have the cassette tape for the song and dance questions. The test materials cost approximately $6.00, plus the time of staff in assembling the test books, coloring in some items, and duplicating tapes.